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ABSTRACT

This report is an independent evaluation of the YCC program using data collected by the Institute for Social Research from some 3,000 enrollees in 100 YCC camps in the United States. Data include a pre- and post-test of environmental knowledge and end-of-camp enrollee ratings of camp and staff quality and of their own self-growth in several learning areas. Additional data come from researcher visits to 17 camps and from questionnaires filled out by all of the camp directors. An evaluation is made (1) of the program's representativeness (race and sex), (2) of self-learning (knowledge of ecology, skill in using tools, interpersonal relations), (3) of work accomplished, and (4) of enrollee's satisfaction with their experiences. Data are analyzed separately by sex, ethnic identification, and certain camp characteristics. Overall, the program was given a very favorable review from the researchers' perspective. Recommendations are included in the areas of staff training, educational programming, transfer of learning to the home environment, testing, and minority involvement. Instruments used in the evaluation appear in appendices. (Author)

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# AN EVALUATION OF THE 1973 YOUTH CONSERVATION CORPS

Jerome Johnston
David Lingwood
William Morris
Robert Marans

INSTITUTE FOR SOCIAL RESEARCH
THE UNIVERSITY OF MICHIGAN
ANN ARBOR, MICHIGAN
1974

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Institute for Social Research

The University of Michigan

Ann Arbor, Michigan

1974

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Special thanks are due to the many camp staff that cooperated with this research by administering questionnaires and responding to our many requests for information on their camp and enrollees. We owe additional thanks to those camp directors who were so hospitable to us when we visited their camps during the summer session.

Our work this year was helped along by the advice of researchers from previous years. Beverly Driver and John Scott made large contributions of time and ideas when we were constructing the research instruments--especially the Environmental Education Test.

A number of support staff assisted the research at various points along the line and, by so doing, made the entire project possible. Judy Kaplan and Jane Delaney supervised the production of questionnaires and the very large task of getting these to and from the many camps around the country. All this was done under great pressure of time.

Diane Davidson assisted in the later phases of data analysis and production of this report. Rita Wiegers typed this product (and re-typed several portions of it as the authors decided on different ways to say things.)

To the YCC enrollees of 1973 we extend a special thanks. We hope that as a result of sharing their reactions to the program with us, the YCC program in future years will be in some way a little bit better.

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Chapter I

# INTRODUCTION

During the summer of 1973, approximately 3200 youth in the United States participated in the third year of the Youth Conservation Corps (YCC) Pilot Program. As in the previous two years, the Institute for Social Research at the University of Michigan has had a role in evaluating the overall effectiveness of the YCC program from the point of view of the participants.[1] In addition, the role was expanded this year to include the development of a computerized system for the rapid feedback to camp staffs of the data provided by enrollees during the first two weeks of camp. The use of this system was part of an experiment to determine whether such information is helpful to camp staffs in managing their camps. This experiment is described in Chapter Six. In the present chapter, we describe the objectives of the YCC program and the design of our research to evaluate the attainment of these objectives.

The legislation establishing the YCC (P.L. 92-597) lists three purposes for the program. It should provide (1) "...gainful employment during the summer months of American youth, representing all segments of society, in the healthful outdoor atmosphere,.." (2) [provide] "an opportunity for understanding and appreciation of the Nation's natural environment and heritage," and (3) "further the development and maintenance of the natural resources of the United States by the youth, upon whom will fall the ultimate responsibility for maintaining and managing these resources for the American people."

These three objectives were further refined in a supplement to the Memorandum of Understanding between the Departments of Interior and Agriculture. These are presented below.

To accomplish the purpose of the Law, the Departments will stress three equally important objectives:

(1) Accomplish needed conservation work on public lands.

(2) Provide gainful employment for 15-through-18-year-old males and females from all social, economic, ethnic and racial classifications.

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[1] R. Marans, B. Driver, and J. Scott, Youth and the Environment: An Evaluation of the 1971 Youth Conservation Corps.

J. Scott, B. Driver, and R. Marans, Toward Environmental Understanding: An Evaluation of the 1972 Youth Conservation Corps.

(3) Develop an understanding and appreciation in participating youths of the nation's natural environment and heritage.

These objectives will be accomplished in a manner that will provide the youth with an opportunity to acquire increased self-dignity and self-discipline, better work with and relate with peers and supervisors, and build lasting cultural bridges between youth from various social, ethnic, racial, and economic backgrounds.

## ANALYSIS STRATEGY

By agreement with the sponsoring agencies, the Institute's evaluation has focused on assessing the impact of the program on the enrollees (objectives 2, 3, and the objectives implied in the paragraph following number three), as opposed to measuring enrollee impact on the environment. In addition to measuring degree to which these objectives were attained, we have tried to account for differences in attainment by relating various measures of enrollee and camp characteristics to the outcome measures. This approach to the research is summarized below in the table of constructs.

In trying to explain differences in attainment, we have employed a three-step analytic procedure. The predictor measures are divided into three groups. The first set includes characteristics of enrollees such as their sex, race, etc. As a set they are used to predict an outcome (satisfaction, knowledge, etc.). This is done by including them all in a multivariate analysis which attempts to explain variation in the outcome variable. The particular analysis technique is called Multiple Classification Analysis (MCA). It is a form of multiple regression with a few additional advantages. Unlike linear regression, MCA can handle both continuous variables (such as age) and discrete variables (such as race) at the same time. Thus the technique is highly appropriate for analyzing the YCC data. For any analysis, the output of MCA includes a measure of the amount of variance that can be accounted for in the outcome variable, e.g., Corps member satisfaction. This measure is referred to as the Multiple R-squared. The output also includes two statistics for each of the predictor or explanatory variables in the set. One is eta, a measure of the predictive power of the measure taken by itself, and the other is beta, a measure of the predictive power of the measure when the other measures are taken into account. The concept of "taking into account" or "controlling for other variables" is very important. Sometimes apparent differences are associated with a measure, but they disappear when another factor is "taken into account."

Characteristics of enrollees are considered first, because they represent the "given" -- the unchangeables with which YCC must work. Thus the first analytic question asks whether there are differences in satisfaction or learning which are associated with differences in sex, race, grade in school, or other background measures. Having answered this question, a

RESEARCH ON THE YOUTH CONSERVATION CORPS PROGRAM

1971 - 1973

CONSTRUCTS

PREDICTORS

I. Organizational Characteristics (Chapter 3)

A. Objective - camp types, programs and settings; aggregate camper characteristics

B. Perceived - camper-staff interpersonal relations and participation; ratings of camp and program components

** C. Data Feedback Process (Chapter 6)

II. Individual Characteristics (Chapter 2)

A. Demographics and Background

** B. Verbal Ability

EVALUATION CRITERIA (OUTCOMES)

III. Environmental Education - Formal Learning (Chapter 5)

** IV. Perceived Learnings (Chapter 4)

A. Ecology

B. Use of tools

C. Working with others -- peers, co-workers, people of different racial-ethnic backgrounds

** V. Perceived Value of Learnings for Home Environment (Chapter 4)

VI. Satisfaction/Worthwhileness of Summer Experience (Chapter 4)

** Added in 1973 Program Evaluation

second one is asked of the data: do any camp characteristics account for differences which the characteristics of individuals do not? In this second step, the camp characteristics and enrollee characteristics are considered simultaneously. This helps separate out the real causal factors from the apparent causal factors. For example, an apparent difference between four- and eight-week camps could be associated with the types of campers who attend the four-week sessions vs. those who attend the eight-week sessions. In such a case, the most reasonable interpretation of the differences would be to say that it is the types of enrollees in the particular camp that makes the difference, not the length of session.

A third set of measures that are examined are the characteristics of the camp environment that are derived from average enrollee ratings of factors such as quality of staff, quality of interpersonal relations between campers and staff, and enrollee participation in camp decision-making.

## THE SOURCE OF DATA

The data for this report were collected in self-completed tests and questionnaires designed and printed by the Institute and administered to groups of enrollees in each camp by the camp staff. There were three separate sessions. (1) A pretest of environmental knowledge was given within the first three days of camp. (2) During the first part of the second week of camp, a questionnaire on staff-camper relations and camper participation in camp governance plus a short test of verbal skills were given. Finally, (3) during the last week of camp two instruments were filled out by enrollees: a post-test of environmental knowledge and a questionnaire asking for their assessment of camp quality and their self-assessment of how much they had learned in the several learning areas. Care was taken to protect the confidentiality of respondents; a code was used to match up the different instruments provided by each respondent.[2] All of the instruments were returned to the Institute for computer processing.

In addition to responses from Corps members, information was collected through mail questionnaires sent to camp directors and from site visits made to 17 of the camps by the research staff. This information was used in analyzing enrollees' responses to the program. Before the camps opened, an inventory for each camp was assembled. This included information on dates of operation, size, agency sponsorship, residential character, and sex of Corps members. These variables were also used in analyzing enrollees responses.

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[2]The code was a combination of birthdate and number of brothers and sisters. This was a bad choice. A number of youth did not give the same birthdate on all four of the questionnaires (the year of birth was the most frequent problem). Also, the number of siblings sometimes changed in the course of the summer. We think now that this is not a good way to achieve the goal of confidentiality, given the resulting problems this method generates.

This report on our findings is presented in the following chapters. Chapter 2 describes the young people who participated in the program and Chapter 3 describes the characteristics of the camps they attended. Chapter 4 describes their satisfaction with the program, their impressions of the quantity and quality of the work accomplished, and their feelings about how much they learned during the summer. Chapter 5 describes the Environmental Knowledge test and the performance of enrollees on the test. Chapter 6 describes the data feedback experiment. Finally, Chapter 7 summarizes our findings and presents some recommendations for the future.

Chapter 2

# CHARACTERISTICS OF CORPS MEMBERS

This chapter describes a number of characteristics of the young people who participated in the 1973 Youth Conservation Corps (YCC). The data provide a partial answer to the question of whether or not the program has been open to young people of all social, economic, and racial backgrounds. The measures are used in later chapters in analyzing differences in enrollee response to various aspects of the program.

The legislation establishing the YCC stipulated that, "The Corps shall be open to youth of both sexes and youth of all social, economic, and racial classifications..." In the first two years of the program, we concluded that participants in the program represented a reasonable cross-section of teenagers throughout the United States. However, there was some degree of under-representation of girls, Blacks, and youth from very large cities.

In 1973 the percentage of girls in the program was much larger than in either of the previous years. Table 2-1 shows the data. In the first year of the program one-third of the participants were girls. This increased to 42 percent in 1972 and in 1973 almost one-half (48 percent) were female. The 1973 figure is almost identical to the percentage of 15-19 year old females in the nation as a whole.

The data on family income show that there was a broad range of economic backgrounds represented in YCC. A four category distribution of 1973 family income for YCC and for all "primary families" in the U.S. in 1972 is shown in Table 2-1.[1] A comparison of the two distributions suggests that YCC over-represents the income categories between $5,000 and $15,000 and under-represents the extremes on either side of this range. Assuming that the overall range would shift upward with 1973 Census data and that the range would be even higher for families with 14-18 year-old children, we estimate that only the over $15,000 category is seriously under-represented. We conclude that YCC did indeed attract participants from a broad range of economic backgrounds, although teenagers from the wealthier families were less likely than others to participate.

---

[1] Exact comparisons with national income distributions are difficult; data for 1973 are not yet available from the Bureau of the Census; and even then, the standard tables which are produced do not present the relevant tabular breakdowns. The appropriate reference group would be families which had a teenage child between the ages of 14 and 18. The closest comparison we can make is with the 1972 income distribution for all "primary families." For this group the median income was $10,815; interpolating from the trend line of annual increases in income, we estimate that this might have risen to $11,500 by summer of 1973. For the group with teenage children, we would project a median income in excess of $12,000 for those families where the age of the head is 35-54--old enough to have teenage children. This figure is somewhat higher than the median family income of $10,990 for the 1973 enrollees.

Table 2-1

*Characteristics of Corps Members*
(percentage distributions of corps members responding during the summers of 1971, 1972, and 1973)[1]

| | All U.S., Age 15-19 1970[2] | YCC | | |
|---|---|---|---|---|
| | | 1971 | 1972 | 1973 |
| | % | % | % | % |
| **Sex of Corps Members** | | | | |
| Male | 51 | 63 | 58 | 52 |
| Female | 49 | 37 | 42 | 48 |
| Total % and (N) | 100 | 100 (2300) | 100 (3188) | 100 (3032) |
| **Race and Ethnic Background** | | | | |
| White | 81 | 83 | 82 | 80 |
| Black | 13 | 9 | 7 | 7 |
| American Indian | * | 4 | 6 | 5 |
| Spanish surname | 5 | 2 | 3 | 5 |
| Others (including Oriental) | 1 | 2 | 2 | 3 |
| Total % and (N) | 100 | 100 (2275) | 100 (3120) | 100 (3027) |
| **Place of Residence** | | | | |
| Large city of more than 500,000 people | | 7 | 9 | 11 (13)[4] |
| Medium size city of 100,000 to 500,000 people | | 10 | 12 | 11 (12) |
| Suburb of medium or large city | *Not* | 9 | 9 | 10 (11) |
| Small city of 25,000 to 100,000 people | *Available* | 17 | 17 | 18 (17) |
| Small town of less than 25,000 people | | 31 | 28 | 31 (28) |
| Rural area or Indian reservation | | 26 | 25 | 20 (19) |
| Total % and (N) | | 100 (2265) | 100 (3141) | 100 (2751)[3] |

*Less than .5 percent.

[1]Percentages are adjusted to exclude corps members not answering questions. More complete data on sample sizes in 1971-1973 appear in the Technical Notes Appendix.

[2]Census data for all 15-19 year olds in 1970. Sex: Bureau of the Census, United States Summary, Vol. I, 1970, pp. 276-277. Race: Census Report PC(2)-1A. See the Technical Notes Appendix for a discussion of the racial breakdown.

[3]In 1973 data on place of residence and age were collected on the back page of a test of verbal skills administered in the second week of camp. Returns on these instruments was much lower than for other questionnaires.

[4]Numbers in parentheses are the percentages based on those in 7-day residential camps.

Table 2-1 (cont.)

*Characteristics of Corps Members*
(percentage distributions of corps members responding during the summers of 1971, 1972, and 1973)

| | All Primary Families 1972[5] | YCC 1971 % | YCC 1972 % | YCC 1973 % |
|---|---|---|---|---|
| Family Income[6] | | | | |
| Under $5,000 | 19 | 11 | 8 | 11 |
| $5,000-9,999 | 27 | 31 | 24 | 32 |
| $10,000-14,999 | 27 | 29 | 28 | 35 |
| $15,000 and over | 28 | 26 | 30 | 22 |
| Don't know | * | 3 | 10 | * |
| Total % and (N) | | 100 (2098) | 100 (3211) | 100 (3256) |
| Age | | | | |
| 14 | | 1 | 1 | 2 |
| 15 | *Not* | 29 | 28 | 27 |
| 16 | *Available* | 34 | 35 | 34 |
| 17 | | 27 | 27 | 28 |
| 18 or 19 | | 9 | 9 | 9 |
| Total % and (N) | | 100 (2288) | 100 (3167) | 100 (2783)[3] |
| Schooling Completed | | | | |
| 7th grade | | * | -- | -- |
| 8th grade | | 2 | 1 | 1 |
| 9th grade | *Not* | 17 | 17 | 16 |
| 10th grade | *Available* | 34 | 33 | 34 |
| 11th grade | | 33 | 33 | 34 |
| 12th grade | | 14 | 16 | 15 |
| First year of college | | * | * | * |
| Total % and (N) | | 100 (2286) | 100 (3157) | 100 (3033) |

*Less than .5 percent.

[5]Current Population Reports, P-60, No. 90, December, 1973. Table 28: Data on primary families.

[6]The second two columns are based on data provided by enrollees in U of M questionnaires. In 1973 family income data were collected by the agencies. Based on these data, the median income for each of the three years is $11,500 in 1971, $11,950 in 1972, and $10,990 in 1973.

On the racial dimension YCC in 1973 had about the same percentage of non-whites as there are nationally. The 1970 Census shows that 19 percent of the 15-19 year olds are non-white, while 20 percent of the YCC participants were in this category. However, the representation of particular minorities did not reflect the national picture. The percentages of American Indian and Oriental youth were larger than the national rates while the percentage of Blacks was one-half the national rate (see Table 2-1).

Another dimension associated with differences in background is the size of the community where an enrollee resides during the school year. The data are shown in Table 2-1. Over the three years of the program, there has been a small shift toward a larger percentage coming from urban areas; as in past years, however, the enrollees come predominantly from small cities and rural areas and not from large metropolitan areas. Some of this can be attributed to the existence of non-residential camps which must draw their enrollees from areas near the camps. Twenty-one percent of the campers attended day-camps (non-residential) and another 12 percent were in 5-day residential camps. Since almost all camps are located in rural areas such as national forests and parks, one-third of all the campers had to be drawn from the areas that typically surround the camps. Rarely do such areas include large metropolitan centers. When enrollees in 7-day residential camps (approximately 2200 of them) are analyzed separately (see Table 2-1, numbers in parentheses in 1973 column), the distributions for place of residence shift slightly to show a larger percentage coming from urban areas.

A related question is whether this distribution by "place of residence" matches the national distribution. Unfortunately, the Census does not use the same urbanization measure which we used and we have had difficulty making the comparison. Table 2-2 presents the data which we do have. Column one shows the national distribution for people of all ages, mapping the Census data onto our own urbanization measure. Column two shows the distribution of YCC youth who were in 7-day residential camps. If one assumes that the category "unincorporated parts of urban areas" that is used by Census is properly matched with one of the first three categories, then the two distributions match fairly closely, with the "small town" category being over-represented in YCC at the expense of "rural."

Mirroring the national picture, Blacks in YCC came more frequently from the cities than did whites -- almost one-half of all the Blacks in the residential camps came from cities of 100,000 or more. So urbanization gives us no clue as to the type of Black that is under-represented in the program. In summary we find no evidence that there are rural/urban types of youth who were not represented in the program. Inasmuch as this factor is important to people responsible for the program, more accurate census-type information will have to be collected.

Unlike previous years, we are able to describe the 1973 enrollees as to their verbal ability. In order to better understand performance of campers on the environmental education test, we had camp staffs administer a test of verbal skills at the beginning of camp. This is the vocabularly skills

Table 2-2

*Place of Residence by Race for Enrollees in 7-Day Residential Camps*

| Place of Residence | U.S. Pop, All Ages[1] | —YCC 7-Day Residential Camps— Total | Black Only | White Only | Spanish Surname |
|---|---|---|---|---|---|
| Large city of more than 500,000 people | 16 | 13 | 23 | 12 | 18 |
| Medium size city of 100,000 to 500,000 people | 12 | 12 | 25 | 11 | 15 |
| Suburb of medium or large city | --[a] | 11 | 5 | 12 | 13 |
| Small city of 25,000 to 100,000 people | 17 | 17 | 20 | 17 | 23 |
| Small town of less than 25,000 people | 21 | 28 | 20 | 30 | 28 |
| Rural area or Indian reservation | 27 | 19 | 7 | 18 | 3 |
| Unincorporated parts of urban areas | 7 | --[b] | --[b] | --[b] | --[b] |
| Total % and (N) | 100 | 100 (1638) | 100 (124) | 100 (1291) | 100 (74) |

[1] U.S. Dept. of Commerce, Statistical Abstract of the U.S. 1973. Table 18.

[a] Not a category for Census.

[b] Not a category for U of M study.

portion of the General Aptitude Test Battery. The test can be thought of as a measure of general academic ability. The average academic ability of enrollees who had just completed the ninth grade were comparable to the national average. But the average of those who had completed the tenth grade and higher was considerably above the national norms (by 1/3 to 1/2 standard deviation). What this indicates is that typical YCC enrollees--at least those who have completed grade 10, 11, or 12--were academically among the better students in their grade level. The implications of this point for learning and test performance are discussed in Chapter 5.

The data on the characteristics of enrollees are presented because there is a need to evaluate how well the program did in meeting the legislative requirement of "openness to all." The particular judgment one makes depends on how one thinks about the issue. The Congressional Act creating the YCC states two things about the population to be served. In the introduction it says that

the gainful employment of "American youth, representing all segments of society" is good. Later it stipulates that, "the Corps shall be open to youth of both sexes and youth of all social, economic and racial classifications..." The main criterion appears to be the "openness" of the program to all. We interpret this to mean that youth between the ages of 15 and 18, of both sexes, and from all backgrounds should feel that the program is open to them in the sense that if they are interested in participating, and they meet the minimum qualifications, then they have as good a chance as any other teenager of being selected to participate. By this interpretation, the proof of the program's openness does not lie entirely in the numbers of different subgroups who are in the program. First of all, there is the matter of attractiveness. It is implicit in the program's description that a YCC candidate will be interested in three things: gainful employment at the current YCC wage rate, living and working outdoors, and development and maintenance of the nation's natural resources as they are manifested in National Forests, National Parks, and public domain lands. But it is doubtful that these things have universal appeal among all groups of youth. Many urban youth may have no desire to spend eight weeks in the woods. Indeed, we have talked to some urban Black youth for whom the non-urban environment of a National Forest holds little appeal. On a different dimension -- economics -- we know of one Indian tribe where many teenagers prefer to work in a nearby tourist town rather than join YCC because they can earn much more money.

The most relevant criteria to be considered in judging the program's openness is the recruitment procedure which is used to generate the pool of applicants, and the selection procedure by which some applicants are accepted and others rejected. Recruitment procedures varied quite a bit around the nation. But a typical procedure involved a YCC representative going to a high school and describing the program in a school assembly. Given the number of available personnel and the size of the Pilot Program, such presentations were made in only a small fraction of the total number of schools in a state. In some cases there was no assembly and a school counselor was asked to disseminate the basic facts about the program. In either case, the school counselor was asked to help with the recruitment by spreading the word and coordinating the application process. One of the implicit criteria for selection into the program is that the applicant have an interest in conservation or in learning about development and maintenance of natural resources. This alone limits the number of youth whom a counselor may consider as possible candidates (and thus encourage or discourage them to participate). Another criterion clearly eliminates individuals who have broken the law or who are known to have used drugs. Then there are some assumptions which the counselor must make on the basis of the application form. To be considered for YCC, an enrollee must secure a recommendation from an adult (typically a teacher or counselor). This person is asked to rate the applicant on five characteristics: "Academic rating, Dependability, Relationship with others, Leadership ability, Ability to take directions." Inevitably, these several criteria result in "better" youth being approached and/or selected. By "better" is meant those who stand out as being interested, enthusiastic, cooperative, and -- as our data on verbal skills show -- above average academically. Inevitably, all of these many filters have the effect of limiting interest and participation of some groups of teenagers.

The point of all this discussion is to underscore the difficulty of evaluating how "open" a program such as YCC is to youth of all backgrounds; and that such a judgment has to consider not only the presence of youth from many different backgrounds, but also the extent to which the program was made known to all groups, the nature of the program (its appeal, if you will), and the requirements laid down for the selection of participants.

From our perspective, we think the program has done a good job in obtaining the participation of teenagers of both sexes and teenagers from a broad spectrum of social, economic, and racial backgrounds. A notable exception concerns Black youth. It is not clear whether this is due to limitations in recruitment or more simply to a lack of appeal of YCC to these youth. As an aside, we find it refreshing to find a federal program which is aimed both at middle class Americans as well as various underprivileged or deprived groups in society.

## Chapter 3

## CHARACTERISTICS OF THE CAMPS

An important part of our evaluation of the Youth Conservation Corps is understanding the effects of different camp and program characteristics on corps member responses. In order to present some idea of the types of differences that existed in camps during 1973 and to lay the groundwork for the analyses which follow, this chapter will describe a number of camp and program characteristics.

For purposes of our study, a total of 100 camps are considered. A camp in American Samoa and one in Puerto Rico were not included in our inventory. Nine of these 100 camps held two consecutive four-week sessions. In the discussion to follow, these are considered as single camps.

Table 3-1 shows some of the characteristics of these camps. About one-half (48) of the camps were conducted by the U.S. Forest Service within the Department of Agriculture; the other half (52) were conducted by five different Bureaus within the Department of the Interior. Each of the six sponsors conducted approximately the same number of camps as they did in 1972.

The camps varied in size from one small camp of five enrollees in Wyoming to a very large operation of 73 enrollees in California. The mode was a camp with 20-30 campers. The length of the summer program was nine weeks in the single session camps, although a few camps ran a few weeks shorter or longer. In the eight double-session camps each session lasted four weeks.

About one quarter of the camps were non-residential. In non-residential camps enrollees were transported daily from pick-up points near their homes to work sites a short distance away. There were two types of residential camps, 5-day and 7-day. In the former, campers stayed at the camps during the week, and returned home on the weekends. Of necessity, these camps drew their enrollees from communities relatively near the camps. In contrast, enrollees at the 7-day residential camps came for the entire season (with maybe one furlough) and came from areas anywhere within the state. Facilities at the residential camps varied greatly. Among those used were college campuses, boarding schools, ski lodges, army posts, training centers, former vacation resorts, and wilderness locations. The living accommodations ranged from dormitories, cabins, and trailers to tents.

Eighty-nine of the camps were co-educational. The number of coed camps has increased steadily over the three years, starting with one-half of the camps in 1971, increasing to 80 percent in 1972, and to 89 percent in 1973. Typically, coed camps had approximately equal numbers of boys and girls.

Table 3-1

*Characteristics of Youth Conservation Corps Camps - 1972 and 1973*

| | Number of Camps[1] | |
|---|---|---|
| Sponsoring Agency | 1972 | 1973 |
| Bureau of Indian Affairs | 6 | 6 |
| Bureau of Land Management | 6 | 8 |
| Bureau of Reclamation | 6 | 6 |
| Bureau of Sport Fisheries and Wildlife | 19 | 18 |
| National Park Service | 13 | 14 |
| Forest Service | 47 | 48 |
| Sex Composition | | |
| Coed | 78 | 89 |
| Girls only | 5 | 4 |
| Boys only | 14 | 7 |
| Size of Camps (number of corps members) | | |
| 5-14 | 5 | 4 |
| 15-20 | 20 | 12 |
| 21-29 | 26 | 41 |
| 30-39 | 25 | 25 |
| 40-50 | 21 | 12 |
| 51-73 | -- | 6 |
| Duration of Camp Sessions | | |
| 4 weeks | 12 | 9 |
| 5-7 weeks, 8 weeks, 9-10 weeks (8 weeks) | 85 | 91 |
| Type of Camp | | |
| Residential - 5 day | 52 | 19 |
| Residential - 7 day | 18 | 53 |
| Non-residential | 26 | 28 |

[1]Excludes a camp in American Samoa and one in Puerto Rico. Camps with two consecutive four-week sessions are considered as single camps.

We discussed earlier the distribution of minorities in the overall program. A related issue is the extent to which minorities were distributed within the many camps. Table 3-2 shows the data. The statistic that is used

Table 3-2

*Percentage of White Enrollees in Camps*

| Percent White | Number of Camps |
|---|---|
| 20-39 | 5 |
| 40-59 | 9 |
| 60-79 | 23 |
| 80-89 | 33 |
| 90-94 | 14 |
| 95-100 | 15 |

is the percentage of enrollees in a camp who identified themselves as White (as opposed to American Indian, Black, Spanish surname, Oriental, or "other"). The relevant question is this: in how many of the camps was there a sufficient number of youth of a different racial background to make cultural exchange possible? There is no single fraction which is a cutting point; too much depends on the particular individuals involved. But we can say that only 7 camps were entirely without minorities, and another eight had only one person of a minority background. So, in most of the camps we think there was at least the opportunity for cultural exchange.

Camper Ratings of the Staff. Enrollees were asked to rate the staff in their camp on five different dimensions. The ratings scale had five points, ranging from excellent to poor. The questions are shown in Figure 3-1, along with the average camp-level ratings.

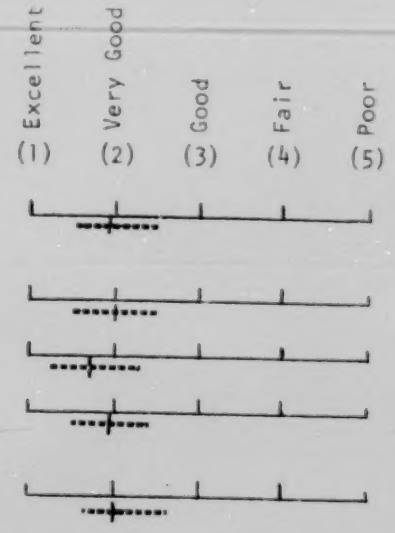
Overall, the camp ratings are very high, indicating that the enrollees had considerable respect for the quality of the staff in their camp. Comparisons of the 1973 data with the 1972 data are interesting. All of the 1973 ratings are somewhat higher. Ratings of the staff as work leaders and on their commitment to YCC are not much higher (10 percent of a standard deviation). But on items C-E--concern and knowledge of the environment and ability to help you learn about the environment--the ratings are all 1/4 of a standard deviation higher in 1973. This suggests that a greater effort may have been made in 1973 to select staff for their environmental awareness and concern. Of course, some of the differences between the two years could be attributable to the fact that a different set of campers did the ratings. However, it is certainly reasonable that camp directors would have learned from the 1972 season some of the characteristics that make for the best staff, and would have been able to make better selections the following year.

Enrollees were also asked to rate other aspects of the program, including various aspects of the environmental education program, the quality of their fellow-corps members, the coordination between work and education, the quality

Figure 3-1

*Camp Mean Scores of Camper Ratings of the Staff*

Here are some questions about how you would rate specific parts of the Youth Conservation Corps.




NOTE: Dashed line shows the range of camp means for camps with scores between the 10th and 90th percentile. The vertical mark on the dashed line shows the overall mean of all camp ratings.

of the living and recreational facilities, and the extent to which the camp was seen as a close-knit community. Most camps averaged between good and excellent. Details of these ratings can be found in Appendix B. The Appendix on post-season reports to camp directors.

Interpersonal Relations and Camper Participation. Two additional characteristics of the camps were important correlates of corps member responses to the program in the first two years. These are the extent to which corps members said they participated in camp governance and the ratings they gave to quality of interpersonal relations between campers and staff. These were assessed again in 1973. Six questions were asked about each of the concepts; they were asked in the final week of camp. The six items on staff-camper interpersonal relations are shown below.

Items in the Interpersonal Relations (IR) Index

--How often is the behavior of the camp staff friendly and supportive?

--To what extent do you consider individual members of the staff as friends?

--To what extent does the staff give positive rather than negative comments or criticisms in discussing the work of camp members?

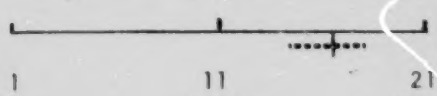
-- To what extent do you feel free to talk to members of the staff?

--To what extent does the staff treat you as an individual rather than just another member of the group?

Next to each question was a line divided into equal parts with diametrically opposite responses appearing at the two ends. Corps members were asked to place an "X" at the point along the line which best described their camp according to the dimension. (See the Appendix for the actual questionnaire.) The questions in the index consider the corps members' perceptions of the staff's friendliness, supportiveness, and willingness to communicate with the campers. They also ask about the staff's respect for each camper as an individual and about the quality of the comments that are made in discussing the work of campers.

Responses to these questions were scored on a 21-point scale. For each camper an Interpersonal Relations Index (IR) was calculated by taking a mean of ratings for the six items. Then, for each camp, a summary measure of interpersonal relations in the camp was calculated by taking a mean of IR index scores for all of the enrollees in that camp. The average camp rating on interpersonal relations was 16.5. Eighty percent of the camps had ratings between 14.5 and 18.3. This is illustrated in the scale below. The average score was 1/4 standard deviation higher in 1973 than in 1972.

Average Camp Ratings on Interpersonal Relations Between Staff and Enrollees




We will discuss this index further in the chapters that follow.

The six items on enrollee participation in camp decision-making are shown on the following page.

Items in the
Enrollee Participation (P) Index

--How often does the staff ask for and use your ideas about program matters such as work assignments and topics to be studied?

--How often does the staff ask for and use your ideas about non-program matters such as discipline and free-time activities?

--To what extent is the staff willing to try new ways of doing things in order to improve the corps program?

--How much are you involved in making decisions about running the camp and its programs?

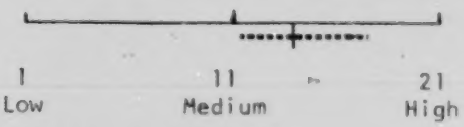
--How often do the staff and corps members meet to discuss camp problems?

--To what extent is the staff willing to share information with corps members about the camp and its operation?

There are three concepts being measured here. One is the general flexibility of the staff; are they willing to do things differently if the situation demands. Second is whether information on camp operation is shared with the enrollees and, related to this, whether times were set aside to discuss camp problems. The third concept is the actual involvement of enrollees in decision-making with respect to work assignments, topics studied in environmental education, free-time activities, discipline policy, and general running of the camp.

Responses to the six questions were made on a 21-point scale of opposites (see the Appendix for the actual questionnaire). An average participation index score was calculated for each camp, using the same procedure described above for the IR index. The average camp rating was 13.9, with 80 percent of the camps having a score between 11.3 and 16.6. This is illustrated on the scale below. The average rating was 40 percent of a standard deviation higher than in 1972.

Camper Participation in
Camp Decision-Making



As we will see in later chapters, a camp's rating on this measure is an important predictor of some of the outcomes of interest in the YCC program. This was true in prior years as well, but there has been some misunderstanding about the meaning of the measure. In the extreme, some people have thought that we are asking campers whether they had the opportunities to perform the functions which are properly functions of the staff. Some camp directors have focussed on the one item which asks if enrollees were consulted for their ideas on work assignments. They interpreted this as asking if campers selected all the work projects to be done--an impossible task if one considers how much time is required in advance of the opening of camp to get supplies and reserve facilities for the projects which will be accomplished in the eight short weeks of camp. Interpretations such as this fail to see the overall picture. What is being asked is whether enrollees' opinions are considered in decisions that are made in many different areas of camp life.

We do not mean to imply that the enrollees should be placed on the board of directors of each camp. What we do know is that studies in other organizations, notably industry, show that greater participation in decision-making related to the work results in higher worker satisfaction and frequently in greater productivity. Since YCC is a job, it seemed plausible that the same principle would apply. What the measure of participation is trying to assess is a general involvement in decision-making. We feel that a genuine and legitimate sense of involvement can result from enrollees being asked their opinion on decisions that might appear to be minor to the camp staff. For example, on the job it could result from work leaders asking whether a trail should be cleared starting at the top or the bottom, or whether a new trail should be cut straight up a slope or up a longer but less steep side route. Back at camp, enrollees might be consulted on the rules that will be used to govern community life in the camp, rules which the staff will enforce. What is important is for staff to be alert to the many daily opportunities to involve campers in such decisions.

The rationale for encouraging this type of participation extend beyond a concern for worker satisfaction to a consideration of the developmental needs of adolescents in a democratic society. If teenagers are going to learn how to take responsibility for themselves and their community, they have to have occasions to practice it--to make decisions and understand the consequences. Given the program and the small adult-to-adolescent ratio, YCC is uniquely suited to provide opportunities which will increase competence in the area of decision-making and community responsibility.

Chapter 4

# ENROLLEE RATINGS OF SATISFACTION, WORK, AND LEARNINGS

## SATISFACTION AND WORK

For the third year in a row, enrollees indicated very high satisfaction with the YCC program. This conclusion is based on their responses to two questions shown in Table 4-1. The first one asked how much they liked their experience. Seventy percent of the campers chose the highest rating possible and most of the remainder (23 percent) chose the next highest rating. A second question asked how worthwhile they felt their experience had been. Eighty-one percent of the enrollees chose the highest point on a four-point scale and most of the remainder selected the next highest scale point.

While there was not a lot of variability in the satisfaction measures, we searched for the correlates of differences in ratings. Using the first satisfaction measure in Table 4-1, we looked for differences among a variety of enrollee characteristics including sex, grade, age, parent's education, urban/rural home environment, prior camping experience, and racial background. The only systematic differences we found were related to race. American Indian and Black youth displayed slightly lower levels of satisfaction than did other racial groups. This is shown in Table 4-2. An accurate summary of racial differences would be to say that Blacks and Indians liked their YCC experience, but were less extreme in checking the rating scale.

For the American Indian youth, we have to raise a methodological question pertaining to these results. Is it proper to compare across cultures the responses to a scale which is trying to measure degree of emotional response? It is the authors' impression that in the mainstream American culture there are norms which support the outward expression of emotion and sentiment, in contrast to the norms in most Indian tribes. Thus, it is quite possible that for many Indian youth the statement "I liked it" may be equivalent to the apparently more extreme statement, "I really liked it." In the absence of strong evidence to the contrary, we choose to minimize the meaning of the small differences in satisfaction for Indians until an additional study can be made using other than paper-and-pencil survey instruments.

Blacks in the program come from a variety of backgrounds, but it seems unlikely that we can make the argument that the norms for expression of emotion are generally different for most Blacks. What we can point out, though, is that there is more variability about the mean rating of satisfaction for Blacks than there is for other groups (standard deviation = .80 vs. .60 for the rest of the sample). This indicates that much of the explanation for a Black's response to the program is linked to factors other than his skin color or to a homogeneous influence of "Black culture." Two types of explanation are possible. One is

Table 4-1

*Overall Evaluation of the Youth Conservation Corps Experience*

| | Corps Members Responding During Final Week | | |
|---|---|---|---|
| | 1971 % | 1972 % | 1973 % |
| To begin with, how do you feel about your Youth Conservation Corps experience this summer? | | | |
| I really liked it | 55 | 67 | 70 |
| I liked it | 31 | 22 | 23 |
| I can't say I clearly liked or disliked it (neutral) | 9 | 4 | 5 |
| I disliked it | 1 | 1 | * |
| I really disliked it | * | * | * |
| No response | 4 | 6 | 2 |
| Total | 100 (2245) | 100 (2856) | 100 (3045) |
| How worthwhile to you was your Youth Conservation Corps experience this summer? | | | |
| Very worthwhile | 71 | 78 | 81 |
| Somewhat worthwhile | 23 | 15 | 16 |
| Not very worthwhile | 2 | 1 | 1 |
| Not at all worthwhile | 1 | * | * |
| No response | 3 | 6 | 2 |
| Total | 100 (2245) | 100 (2856) | 100 (3045) |
| Compared to other summer jobs for people your age, how would you rate the Youth Conservation Corps job you had this summer? | | | |
| Excellent | Not Asked | Not Asked | 61 |
| Very good | | | 22 |
| Good | | | 11 |
| Fair | | | 5 |
| Poor | | | 1 |
| Total | | | 100 (3016) |

*Less than .5 percent.

Table 4-2

*Racial Differences in Satisfaction*

| Category | N | Mean* | S.D. |
|---|---|---|---|
| American Indian | 142 | 1.56 | .66 |
| Black | 216 | 1.59 | .80 |
| Oriental | 43 | 1.28 | .63 |
| Spanish | 126 | 1.40 | .67 |
| White | 2386 | 1.32 | .57 |
| Overall | | 1.34 | .60 |

*1=I really liked it, 5=I really disliked it. ANOVA: eta = .15

that there is variation in the response of Blacks according to their background (Southern/Northern, rural/urban, etc.), and the other is that the experience of Blacks varies a lot depending on the particular camp environment to which they are exposed. Systematic observation in the camps in the 1974 season could shed some light on this issue.

We also looked for differences related to camp characteristics such as four-week/eight-week, residential/non-residential, and number of campers. There was a slight tendency for higher satisfaction scores to be associated with four-week camps and with residential camps. These differences, however, were quite small.

Also associated with the highest levels of satisfaction were camper ratings (at the camp average level) of (1) the quality of the staff (their commitment to YCC, their knowledge of the environment, etc.); (2) the quality of the environmental education program; (3) the commitment of other enrollees to the objectives of YCC; (4) the quality of the interpersonal relations between staff and campers; and (5) the extent to which they as enrollees had participated in decision-making in the camp. The first three of these may not be causally related at all. Campers who are more satisfied--for whatever reason--would be more likely to say that everything about the camp--the staff, education program, and fellow enrollees--were "better." But the fourth and fifth factors are not based on "good-bad" type ratings. Rather they are ratings of the extent or frequency with which things are done in the camp and thus are much less subject to distortion by virtue of overall feelings about the camp experience. For this reason, we feel that two factors which influence satisfaction positively are the quality of the staff-enrollee interaction and the extent to which enrollees have a chance to influence some of the decisions which affect them in the course of the summer.

The above findings are based on a three-step analytic procedure which serves as a model for all of the relational analyses that were done for this report. The reader is referred to Chapter I for a discussion of the procedure

and the associated statistical methods. Table 4-3 presents a summary of the multivariate analyses of satisfaction

## RATING YCC AS A SUMMER JOB

In 1973, enrollees were also asked how their YCC experience compared with other summer jobs for people their age. The question and the distribution are shown on the bottom of Table 4-1. The average rating was very high, although there was more variation than with the satisfaction item. Sixty-one percent marked "excellent" and another 22 percent chose "very good." Again, American Indian and Black youth rated the job high, but somewhat lower on the average than did other racial groups. (Rating YCC as an "excellent" or "very good" job: whites 85 percent, Indians 71 percent, and Blacks 65 percent.) Boys rated the YCC job higher than girls. This may reflect the fact that in American culture securing a summer job is more important for a teenage boy than girl; and further, that the jobs which are available to high-school age boys typically do not have the variety of tasks and intrinsic interest associated with them that YCC activities have.

One of the Congressional objectives of the program is to provide "gainful employment" for teenagers. In practice this has worked out to mean compensating enrollees with $300 - $400 for an eight-week summer. We asked the enrollees to rate the amount of money they earned compared to what they felt they could earn at another summer job back home. The scale had five points and ranged from "excellent" to "poor." The average response was between "good" and "fair." It is not clear that enrollees actually could command higher compensation back home, but clearly their enthusiasm for the program is not tied closely to their feelings about the pay.

Responses to the pay question varied considerably around the average rating (see Appendix B, Item X). Much of this variability is associated with particular camps. Since we know that the actual compensation did not vary much, we think that this reflects the different summer job markets associated with different areas of the country and with different areas of states. For example, one camp on the East coast drew campers from two towns: one a large resort town and the other a small isolated town. The former had an ample supply of summer jobs for youth while the latter had almost none.

## WORK ACCOMPLISHED

One of the stated objectives of the YCC is the "development and maintenance of the natural resources of the United States..." While it is not our function to evaluate work output, we nonetheless can provide a perspective on it through the camper ratings of the work accomplished. Enrollees were asked at the end of camp to rate four aspects of the work they accomplished: amount, quality, benefit to the environment, and benefit to the public. The items are

Table 4-3

*Predicting to Enrollee Satisfaction Using Several Predictors Simultaneously**

Average Satisfaction Score: 1.34† Standard Deviation: 0.59

| Predictors** | Beta*** |
|---|---|
| **Individual Characteristics** | |
| Race: Black (1.56), Indian (1.54), Spanish (1.32), White (1.32), Oriental (1.33) | .13 |
| (Verbal skills, Grade in school, Parents' education, Sex, Size of home town, had prior camping experience, had a science course in high school: did not explain any differences in satisfaction) | |
| **Camp Characteristics (Objective)** | |
| Length of session: 4-week (1.25), 8-week (1.37) | .08 |
| Non-residential (1.46), 5-day residential (1.34), 7-day residential (1.32) | .10 |
| (Agency, No. of campers: did not explain any of the differences in satisfaction) | |
| **Camp Characteristics (Subjective)** | |
| IRP: low level (1.80) ... high level (1.10) | .32 |
| (Rating of staff, Rating of EE program, and Rating of other enrollees: these measures are strongly associated with IRP and also predict positively to satisfaction. The strong association means that IRP in this analysis stands for these other three ratings as well.) | |

Total variation in satisfaction explained by using the best predictors simultaneously (Multiple $R^2$) is 12.7%.

*See Appendix E, Technical Tables, for complete results of Multiple Classification Analysis.

**Number in parentheses after each category is the adjusted mean satisfaction score for that category.

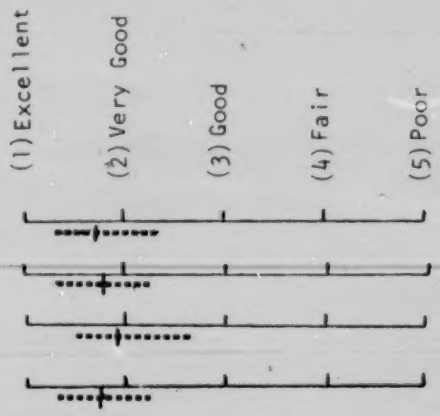
***Beta is a measure of the relative importance of the predictor.

†Scale: 1=I <u>really</u> liked it, 5=I <u>really</u> disliked it.

shown in Figure 4-1. The ratings averaged from "very good" to "excellent." As the campers looked back on the products of their labor, it appears they thought quite highly of them and thought that their work had made a real contribution to the public and the environment. We feel that this is a strong

Figure 4-1

*Camp Level Averages of Camper Ratings of the Work Accomplished*


(1) Excellent
(2) Very Good
(3) Good
(4) Fair
(5) Poor
How would you rate the work accomplished by corps members at your camp:
K. as to amount?
L. as to quality?
M. as to its benefit to the environment?
N. as to its benefit to the public?

NOTE: Dashed line shows the range of camp means for camps with scores between the 10th and 90th percentile. The vertical mark on the dashed line shows the overall mean of all camp ratings.

point of the program when viewed from the perspective of the developmental needs of adolescents in our society. As society asks youth to wait longer and longer to assume positions of responsibility in society and more specifically in the world of work, the youth are deprived of those experiences which can give them some sense of belonging to, and responsibility for, the country around them. YCC may help to offset this pattern, and in so doing, contribute not only to the maintenance of natural resources but also to the development of the participants' self esteem and feelings of adequacy.

## PERCEIVED LEARNINGS

The designers of the YCC program hoped that youth would learn a number of things in the course of the summer. For one, corps members are supposed to learn about the natural environment and how it functions. Second, they should learn about the meaningful use, management, and protection of natural resources.

Third, it was hoped that they would learn how to "better work with and relate with peers and supervisors." Related to this last objective, the program should help "build lasting cultural bridges between youth from various social, ethnic, racial, and economic backgrounds."

Within the limitations of a survey methodology, we attempted to assess fulfillment of these objectives in two different ways. One was through a multiple-choice test of environmental knowledge. This was designed to measure growth in formal knowledge about the environment. A second approach was to ask each enrollee how much he felt he learned in these areas over the course of the summer. The test will be discussed in the next chapter; in the present chapter we will consider the enrollees' perceptions of how much they learned.

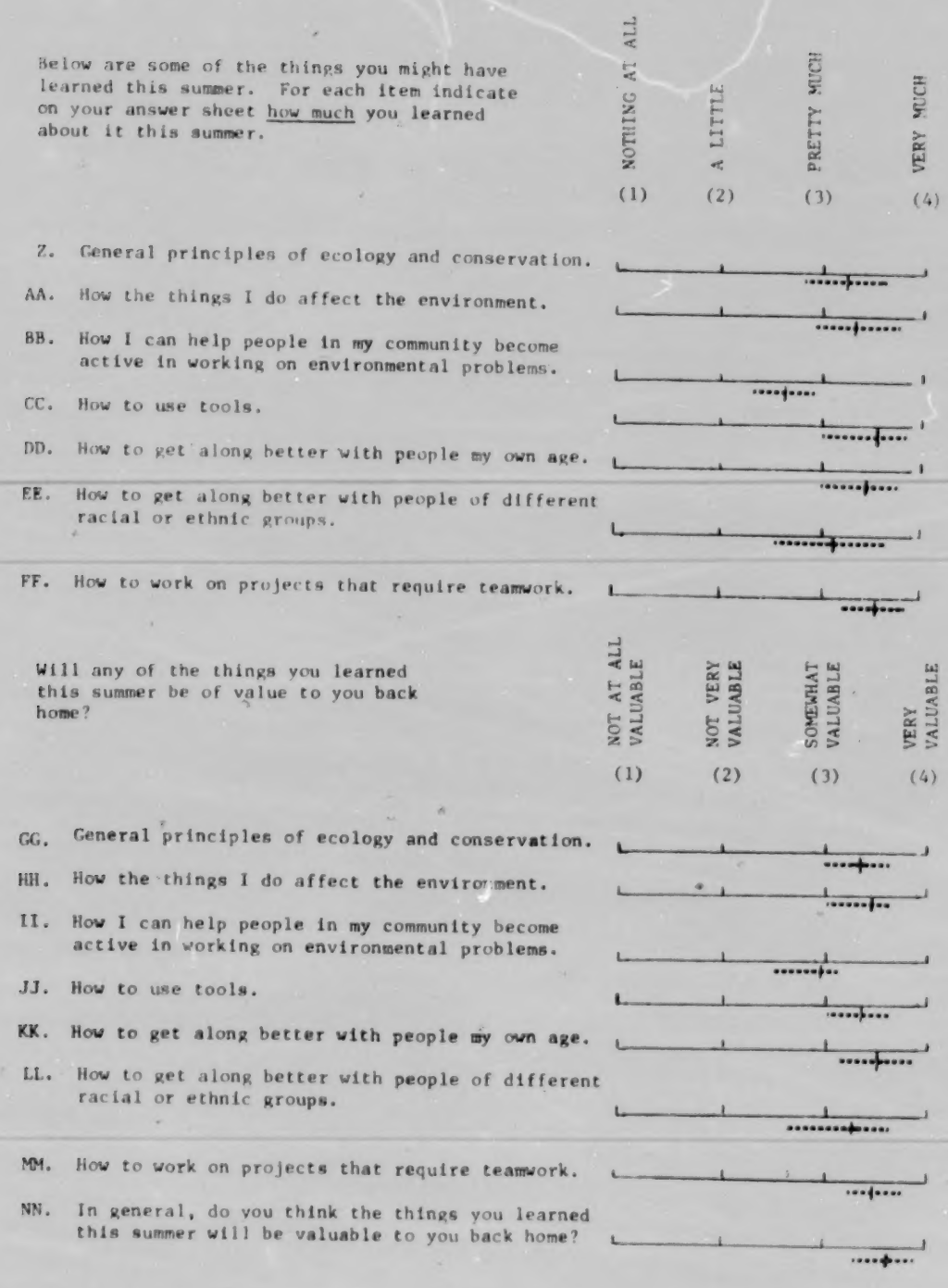
Enrollees were asked to rate how much they learned in seven areas. The items are shown in the top half of Figure 4-2. With one exception, the average ratings ranged from "pretty much" to "very much." The highest ratings were reserved for the items on how to use tools and how to work on projects that require teamwork. Close behind was the item, "how to get along with people my own age." Slightly lower ratings (but still very high) were "general principles of ecology and conservation," and "how the things I do affect the environment."

Almost one-half the enrollees said they learned "very much" about how to get along better with people of different racial or ethnic groups and another 30 percent said they learned "pretty much." Variation in responses was associated with two things. One was the presence of an ethnic mix in the camp. The other was the particular camp. Some camps achieved this objective better than others. There were very few differences in the way different racial groups responded to this item, i.e., cultural exchange seemed to be a two-way street between different racial groups in a camp.

The lowest rating on learnings was reserved for, "how I can help people in my community become active in working on environmental problems." This is not surprising. In our visits to different camps, there was considerable variation in staff philosophy on this point. In some camps (largely Interior camps) there was a certain missionary zeal associated with teaching enrollees things they could do back home to conserve non-renewable resources; this included recycling bottles, minimizing use of plastic products, walking rather than driving, etc. A few environmental education programs went one step further and discussed ways that enrollees could influence their communities to set up glass recycling stations or pollution study groups. But in the majority of camps (in both Interior and Forest Service) the philosophy was to teach enrollees what things needed to be done to conserve the areas on which the corps members were working. For example, in a campground construction project, the focus was typically on how a camping area ought to be built and maintained by those responsible for the campground and how enrollees as citizens could best use the area without upsetting the local ecological balance. Very little attention was given to ways in which the citizenry back home might be influenced to be better campers when they come out from the city to use such a campground, or to ways that learnings associated with campground construction could be relevant to the enrollee's home community.

Figure 4-2

*Camp Level Averages of Camper Ratings of Learnings and Value of Learnings*


Below are some of the things you might have learned this summer. For each item indicate on your answer sheet how much you learned about it this summer.
NOTHING AT ALL
A LITTLE
PRETTY MUCH
VERY MUCH
(1)
(2)
(3)
(4)
Z. General principles of ecology and conservation.
AA. How the things I do affect the environment.
BB. How I can help people in my community become active in working on environmental problems.
CC. How to use tools.
DD. How to get along better with people my own age.
EE. How to get along better with people of different racial or ethnic groups.
FF. How to work on projects that require teamwork.
Will any of the things you learned this summer be of value to you back home?
NOT AT ALL VALUABLE
NOT VERY VALUABLE
SOMEWHAT VALUABLE
VERY VALUABLE
(1)
(2)
(3)
(4)
GG. General principles of ecology and conservation.
HH. How the things I do affect the environment.
II. How I can help people in my community become active in working on environmental problems.
JJ. How to use tools.
KK. How to get along better with people my own age.
LL. How to get along better with people of different racial or ethnic groups.
MM. How to work on projects that require teamwork.
NN. In general, do you think the things you learned this summer will be valuable to you back home?

NOTE: Dashed line shows the range of camp means for camps with scores between the 10th and 90th percentile. The vertical mark on the dashed line shows the overall mean of all camp ratings.

There is a difference, of course, between the relevance of the project itself to the home setting and the relevance of the learnings that come from working on the project, and with living, playing, and working with one's peers. We asked the enrollees to rate the value their learnings would have to them back home. The questions and responses are shown on the bottom of Figure 4-2. The average ratings were very high except for "how I can help people in my community become active in working on environmental problems," which as we noted before received the lowest rating as an area of learning. A single summary question asked, "in general, do you think the things learned this summer will be valuable to you back home?" Two-thirds of the participants responded "very valuable," and another 30 percent said "somewhat valuable." However, these are the responses of youth at the end of the program, before they have had a chance to actually return to their community and test the utility of their learnings.

For purposes of predicting to the perceived learnings, several of the items were collapsed into indices. Inter-item correlations suggested that an average could be taken of the first two items: how much I learned about "general principles of ecology and conservation" and "how the things I do affect the environment." This index was called ECOLEARN. Similarly an average was taken of the last three items: how much I learned about "how to get along better with people my own age," "how to get along better with people of different racial or ethnic groups," and "how to work on projects that require teamwork." This index was named TEAMLEARN. The item on "how to use tools" was kept separate; and the item "how I can help people in my community become active in working on environmental problems" was not included in the predictive analyses.

Several characteristics of enrollees were associated with differences in perceived learnings (See Table 4-4). Girls rated their perceived learnings higher than boys; this was true for learnings in all three areas: ecology, the use of tools, and relationships with peers. This may be due to the fact that in American culture YCC-type activities are engaged in less frequently by girls than boys; accordingly, they are more novel for females. In the area of learnings about ecology, American Indians claimed to learn the least of all groups. This may well be due to the fact that youth in the tribes represented in YCC grow up in a culture that relates to the land (environment, if you will) much more naturally than other cultures in American society. If this is true, then the YCC curriculum would not have as much to teach the native American that he did not already know. In ratings of the overall value of YCC to the back home setting there are also racial differences. Orientals rate the program highest, followed closely by whites and those of Spanish surname. Indians and Blacks rate the back home value of YCC the lowest. We think that these differences are worth further investigation to discover exactly what it is about YCC that makes the learnings seemingly less relevant to these two cultural groups.

Ratings of learnings about teamwork were somewhat higher in residential camps and in eight-week camps. Greater perceived learning about teamwork and about ecology were associated with camps where interpersonal relations between staff and campers were rated highly and where enrollees felt they had some voice in camp decision-making.

Table 4-4

*Predicting to Perceived Learnings Using Several Predictors Simultaneously**

ECOLRN (Mean = 3.06, Std Dev = .59, 1 = nothing at all, 4 = very much)

| Predictors** | Beta*** |
|---|---|
| Race: Indian (2.84), Oriental (3.10), other groups at the average score. | .08 |
| Education: 9 (3.02), 10 (3.07), 11 (3.10), 12 (3.02) | .09 |
| A combination of ratings of Environmental Education and IRP: low (2.63) ... high (3.35) | .29 |

Total variation in ECOLRN explained by using the best three predictors simultaneously (Multiple $R^2$) is 10 percent.

TEAMLRN (Mean = 3.33, Std Dev = .66, 1 = nothing at all, 4 = very much)

| Predictors | Beta |
|---|---|
| Sex: female (3.43), male (3.25) | .13 |
| Non-residential (3.15), 5-day residential (3.28), 7-day residential (3.40) | .15 |
| IRP: low (3.05) ... high (3.55) | .22 |

Total variation in TEAMLRN explained by using the best three predictors simultaneously (Multiple $R^2$) is 8.0 percent.

TOOL-LRN (Mean = 3.50, Std Dev = .74, 1 = nothing at all, 4 = very much)

| Predictors | Beta |
|---|---|
| Sex: female (3.64), male (3.39) | .17 |
| Agency: BR (3.33), SFW (3.31), FS (3.58), other agencies at the average score | .14 |
| IRP: low (3.39) ... high (3.67) | .15 |

Total variation in TOOL-LRN explained by using the best three predictors simultaneously (Multiple $R^2$) is 7.0 percent.

*See Appendix E, Technical Tables for complete results of Multiple Classification Analyses.

**Number in parentheses after each category is the adjusted mean on the dependent variable for that category.

***Beta is a measure of the relative importance of the predictor.

## Chapter 5

## A TEST OF ENVIRONMENTAL KNOWLEDGE

In the previous chapter we examined enrollee perceptions of what things they had learned during the summer. In the present chapter we look at the results of a more objective measure of learnings in one area: knowledge about the principles of ecology. As in earlier years, a test of environmental knowledge was administered to enrollees at both the beginning and end of camp. This year the test was revised considerably to provide better coverage of the stated objectives of the environmental education program.[1] To develop an improved test, we followed a three-step process. We examined the objectives of the sponsoring agencies for the environmental education program and determined which ones could reasonably be assessed by a survey instrument administered to enrollees. We then reviewed the 1972 test and considered its strengths and weaknesses.[2] Finally, retaining the best items which appeared to measure the measurable objectives. The pool was pretested on several small groups to identify problems of language and clarity and to determine the amount of time required to complete the test. Limitations in time precluded large scale pretesting and item analysis.

### THE ENVIRONMENTAL EDUCATION OBJECTIVES

The objectives of the environmental education program are stated in the first chapter of the Environmental Education Source Book. (This book is an internal publication of the Departments of Interior and Agriculture prepared especially for the YCC program.) They are stated first in very general terms and then repeated in more specific terms. Compared to most social programs, the statements are very clear; however, the program could profit from additional work on the statement of objectives. Some of them are vague and need to be stated more specifically; others need to be restated in behavioral terms.

The general environmental education objectives are listed under two divisions: "knowledge" and "attitudes." The knowledge objectives are these:

> Knowledge. The cognitive objectives concern the domains of knowledge, factual information, and basic skills and are considered to be:
>
> (a) The student to have increased awareness about natural laws and ecological principles that govern the natural environment.

---

[1]The test in 1971 and 1972 was primarily the work of Beverly Driver and John Scott. The 1973 revisions represents the combined efforts of Beverly Driver, Paul Yambert and Jerome Johnston.

[2]As part of this review Dr. Driver sent copies of the 1972 test to some 30 environmental educators around the country to solicit their reactions. The reactions of those who replied were incorporated wherever it was possible.

(b) The student to better understand the extent of the present degree of environmental deterioration.

(c) To offer possible solutions to existing and potential environmental problems on both a universal and a personal level.

(d) To develop an environmental ethic in each member of the Youth Conservation Corps, enrollees, staff members, Bureau personnel, parents, and others.

The first objective is fairly easily measured, because the natural laws and ecological principles are enumerated in the Source Book. However, the next three objectives are more difficult. Nowhere is there a specific statement of "the extent of the present degree of environmental deterioration" (objective b). Likewise, there is no list of environmental problems (and their solutions) which is to be discussed in all camps (objective c). Finally, there is no single statement of an "environmental ethic" (objective d). (To the contrary, our visits to camps revealed that there are many different ethics held by the staffs of different camps.)

The second set of objectives is labelled "attitudes."

Attitudes. This second set of objectives concern the affective domain of attitude change and behavior modification of those participating in the Youth Conservation Corps program and represent a primary goal of the educational program. The objective is not to develop extreme positions on the involved issues. Rather, they should be viewed as spectra for each extreme. The focus then becomes the moving of an attitude in one direction or the other.

(a) Production solely of nonbiodegradable waste vs. production of solely biodegradable waste.

(b) Consumption solely of non-renewable resources vs. consumption solely of renewable resources.

(c) Concern solely for the present vs. concern solely for the future.

(d) Solely consumptive resource use vs. solely non-consumptive resource use.

(e) Concern solely for man vs. concern solely for things other than man.

(f) Consumption due solely to wants vs. consumption due solely to needs.

(g) Consideration solely of economic criteria vs. consideration solely of ecological criteria.

The title of this set of objectives is a misnomer. What is of real interest to those who write this objective set is not the feeling or attitude about the environment, but rather a behavioral disposition towards the use of natural resources. This disposition has two components. One is a knowledge component: the youth should learn that there are a number of distinctions which one must make in thinking about the use and abuse of natural resources. For example, they should know that there are two types of resources (renewable and non-renewable), there are two types of waste which can be left over after the use of a resource (biodegradable or nonbiodegradable), etc. corresponding to the seven dimensions in the above list. A second component is the predisposition to behave--choosing the "environmentally sound" type of resource use in any given choice situation: e.g., using products which are mostly biodegradable, consuming mostly renewable resources, etc. We could think of no way to assess these predispositions to behave using a paper-and-pencil instrument administered to the enrollees. Asking someone whether he would choose to use a resource which was renewable over one that was not renewable is akin to asking whether the individual supports motherhood or the Boy Scout Oath. On a questionnaire, if the enrollees appreciate the necessary distinctions (renewable/non-renewable, biodegradable/nonbiodegradable, etc.), they are likely to endorse the "good" actions (using returnable bottles, riding a bicycle rather than cruising around in an automobile) regardless of whether they will actually act in a way consistent with these statements when they return to their home environment. For these reasons, it was decided that the attainment of these "attitude" objectives could not be properly measured, although some attempt could be made to see if enrollees knew the seven distinctions thought to be important.

Thus far we have considered only the general environmental education objectives. The Source Book contains a more specific set as well; these appear below. Looking at the list, we discovered that some objectives could be measured better than others. Ultimately, we decided that all the objectives could be placed into one of three categories. (X), easily measured by a paper-and-pencil survey instrument; (Y), best measured by the staff in each camp using whatever method best suited their situation, and (Z), not easily measured by any means.

| Mode of Evaluation* | Environmental Education Learning Objectives** |
|---|---|

Specific Environmental Education Objectives for YCC Environmental Education and Work Goals. Upon completing the program the enrollee will have an increased awareness about natural laws and ecological principles that govern the natural environment. By the end of the YCC experience he should be able to:

X,Y (1) Identify the basic elements of the ecosystem within his geographic area.

(a) Demonstrate a basic understanding of the biological elements inherent in that ecosystem.

i. Plants.
ii. Animals (including man).

(b) Demonstrate a basic understanding of the physical elements inherent in that ecosystem.

i. Minerals (soil, etc.).
ii. Water.
iii. Air.

X (2) Describe the interrelationships of the basic elements in the:

(a) Food chain.
(b) Water cycle.
(c) Energy cycle.
(d) Carrying capacity.
(e) Biotic succession.
(f) Plant-animal cooperation.
(g) Plant and animal competition.
(h) Limiting factors.

Z (3) Discuss natural phenomena occurring to the ecosystem.

(a) Fire.
(b) Flood.
(c) Weather disaster.
(d) Earthquake.

X (4) Describe man's economic, social, cultural, and physical dependence and resulting impact upon the natural environment.

(a) Historical

i. Primitive to beginning of modern technology.

(b) Present through the future.

i. Satisfaction of basic needs.
ii. Higher population concentrations and pressures.
iii. Higher demands upon renewable and non-renewable resources.
iv. Rapid changes in modern technology.

| Mode of Evaluation* | Environmental Education Learning Objectives** |
|---|---|
| X | (5) Explain man's capabilities to manage and change an environment.<br>(a) Manage resources wisely to meet basic needs.<br>(b) Use resources wisely to satisfy his cultural and social needs.<br>(c) Accept trade-offs and priorities to prevent shortages and exhaustion of resources (recycling, aesthetic vs. commercial, etc.).<br>(d) Understand the functions and philosophies of land and natural resource management agencies (Federal, State, local, and private). |
| Y | (6) Construct a plan of action for the following:<br>(a) Identify, analyze, and propose at least two alternate plans of management for a predetermined area of land based on the summer work experience.<br>(b) Identify a local environmental issue or concern and prescribe at least two alternate ways to affect that issue or concern. |
| Y | (7) Describe at least three ways in which these work experiences will help him better understand the community in which he lives. |
| Z | (8) Analyze his own life style with reference to those activities which contribute to the stability, integrity, and/or beauty of the ecosystem and those which do not. |
| Y | (9) Apply the concepts of an environmental impact statement to specific programs and land areas with which he is familiar. |

*Modes of evaluation:
X. Test instrument administered to all enrollees.
Y. Assessment by camp staff; method unique to each camp.
Z. Not measurable by practical means.

**Taken from pp. 3-5 of Environmental Education Source Book. YCC: 1973.

## THE 1973 TEST

Taking the areas of knowledge that could be easily assessed by a national group-administered test, we developed a test which had a total of 178 multiple-choice items. Twenty-four of these items were included for a special experiment and are not included in the calculation of test totals; so the effective number of items is 154. The actual test appears in the Appendix to this report; an overview of the test and its content areas are shown on the next page.

The test was administered two times; once within the first three days of camp (pre-test) and again about the last week of camp (post-test). The average pre-test score for all of the enrollees was 105.9, or 69 percent correct. The average post-test score for the sample was 113.4, or 74 percent correct. Table 5-1 shows the scores for each part of the test.

Table 5-1

*Scores on the Environmental Knowledge Test*

| Part | No. Possible | Pre | | Post | | Gain | |
|---|---|---|---|---|---|---|---|
| | | Mean | S.D. | Mean | S.D. | Raw | Raw/S.D.* |
| I. Resource Mgmt. | 31 | 22.9 (74%) | 5.22 | 24.7 (80%) | 5.13 | +1.8 | .35 |
| II. Man's Impact | 40 | 29.8 (75%) | 6.27 | 31.2 (78%) | 7.03 | +1.4 | .22 |
| III. Ecol. Respons. | 11 | 8.7 (79%) | 2.38 | 9.0 (82%) | 2.42 | + .3 | .13 |
| IV. Gen'l. Ecol. | 61 | 38.4 (63%) | 11.32 | 41.7 (68%) | 12.20 | +3.3 | .29 |
| V. Fed'l. Agencies | 11 | 6.2 (56%) | 3.09 | 6.8 (62%) | 3.36 | + .6 | .19 |
| Total, Part I-V | 154 | 105.9 (69%) | 25.12 | 113.4 (74%) | 27.20 | +7.5 | .30 |

*Standard deviation of the pretest scores.

There are no norms for performance on this test, since there are no groups other than the 1973 enrollees who have taken the test. However, some feeling for the amount of growth that took place can be obtained from a comparison of entrance and exit scores of enrollees of different grade levels. Specifically,

| TEST PART | CONTENT AREAS | RELATED OBJECTIVES* |
|---|---|---|
| I. Resource Management<br>31 items | types of resources; exploitation, conservation, preservation; factors affecting resource consumption; forest management; wildlife management | 3a, 4b, 5 |
| II. Man's Impact<br>40 items | effects of water; types of pollution; urban problems; variety of harmful impact of man on environment | 4b |
| III. Ecological Responsibility<br>11 items | evaluation of activities or purchases along 6 dimensions: (1) does it consume resources, (2) are the resources renewable or non-renewable, (3) is the product biodegradable, (4) is the consumption based on needs or wants, (5) does the activity show a concern for future as well as present, (6) is concern shown for forms of life other than human | 4b |
| IV. General Ecology<br>61 items | biotic succession, food chains, biochemical cycles, carrying capacity and biomass, limiting factors, interspecific and intraspecific competition, pesticides, water cycles, energy sources and use, effect of natural processes on land and plants | 1, 2, 4 |
| V. Federal Resource Agencies<br>11 items | the functions of: National Park Service, U.S.G.S., Bureau of Reclamation, U.S.F.S., BLM, Soil Conservation Service, Bureau of Sport Fisheries, B.I.A., BOR, U.S. Army Corps of Engineers, Environmental Protection Agency | 5d |

*Related objective from YCC statement of specific environmental education learning objectives.

we can compare the exit scores (post-test scores) of ninth graders with the entrance scores of tenth graders; likewise, we can compare tenth with eleventh graders, and eleventh with twelfth graders. The data appear in Table 5-2.

Table 5-2

*Differences in EE Scores by Grade Level*

| Grade | N | Pre-test (Mean/S.D.) | Post-test (Mean/S.D.) | Raw Gain |
|---|---|---|---|---|
| 9 | 449 | 92.8/25.8 | 100.0/28.5 | +7.2 |
| 10 | 973 | 103.2/24.9 | 111.3/27.2 | +8.1 |
| 11 | 953 | 110.9/21.7 | 118.3/24.2 | +7.4 |
| 12 | 407 | 119.5/19.5 | 126.0/20.6 | +6.5 |
| | 2782 | 105.9/25.1 | 113.4/27.2 | +7.5 |

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

9th grade post-test minus 10th grade pre-test = -3.2 t* = 2.054 (.05)

10th grade post-test minus 11th grade pre-test = +0.4 t = 0.370 (N.S.)

11th grade post-test minus 12th grade pre-test = -1.2 t = 0.898 (N.S.)

*t - test on the difference between the two means.

The ninth graders did not quite reach 10th grade entry level. Tenth and eleventh graders did reach the entry level of the next higher grade group. The twelfth graders have no comparison group since there were no enrollees from higher grades than 12. These findings lead us to the following general conclusion. On the average, tenth and eleventh graders in YCC learned as much about ecology and resource management in the course of a YCC summer as they would in a typical year in school. Ninth graders learned about as much as they would in one-half year in school. This is not to say that an eight-week ecology course in a YCC camp is the equivalent of a one or two semester course offered by a school system. But not many students take such courses in school, and much of the typical learnings about ecology come through a variety of inputs, including newspapers, television, courses in public affairs,

and courses in biology. Taking into account this eclectic method by which principles of ecology are usually learned, an eight-week summer course in YCC seems to teach as much as 5 to 9 months of varied inputs on ecology during the school year.

A little more might be said about the test results themselves. The average pre and post-test scores presented earlier correspond to enrollees getting an average of 68 percent of the items correct on the pre-test and 73 percent on the post-test. Intuitively, it appears that pre-test scores were very high and that the amount of gain is quite small. In some senses this is true, and the reason has to do with academic skills of the average enrollee. As noted in Chapter 2, a test of verbal skills was administered in 1973. Comparison with national norms showed that YCC enrollees were above average in verbal skills and accordingly, on a word-oriented environmental knowledge test designed to show differences within a typical population, the enrollees performed above average -- i.e., they answered 68 percent correct on the pre-test instead of, let's say, 50 percent correct. In other words, the typical YCC enrollee starts out knowing more than the average teenager about ecology (and about how to take tests). For various statistical reasons, this fact places a limit on the amount of gain which most enrollees can exhibit, and indeed on the amount of new information about the environment which they can actually learn over the summer. This is more than just an artifact of the test, it is a reflection of reality. YCC enrollees are a highly motivated, academically skilled group who have already evinced an interest in the environment before coming to camp (see Chapter 2). By definition, such a group is going to display a greater understanding of the principles of ecology and the concepts of resource management than many of their peers. Accordingly, they have less to learn about the concepts measured in the test -- basic principles of biology, ecology, resource management, etc.

## PREDICTING PERFORMANCE ON THE EE TEST

There was considerable variation in the pre-test scores of individuals and also in the increase in scores between the pre-test and post-test. Entrance scores were related most strongly to the verbal skill level of enrollees. The product-moment correlation between the two was .69. This indicates that the academically more capable students perform better on this test initially. Since the verbal skill scores increase with age and grade, we can note that the relevant academic skills are not just the basic skills which are well established in an individual by the time he reaches ninth grade, but also include skills that improve with additional schooling and exposure to words and ideas. After taking into account verbal skill level, several other personal characteristics showed a small relationship to performance on the pre-test. These included having had a course in biology or conservation, being in a higher grade in high school, and being Oriental or white. These findings sound a caution to those who would like to interpret scores on the pre-test, since characteristics of the campers and their background greatly influence initial test performance.

The major focus of interest, though, is on the difference between the pre-test and post-test scores, regardless of what the initial test scores are. What we want to do is predict to the gain score, obtained by subtracting the pre-test score from the post-test.[3] The various predictors that were considered are shown in Table 5-3. We first considered characteristics of the individual which might account for differences in the amount learned during the summer. The test scores of American Indian and Black youth show a smaller gain than do those of other racial groups. The reasons for this are unclear. One possible explanation could by the test itself; it may be unfair to use the same paper-and-pencil test for all groups across the country. After all, this type of achievement testing is most valued by the mainstream white culture. On the other hand, it may well be that less learning occurred among these two miniority groups. The reasons could have to do with factors such as the particular EE program in the camps where they resided as well as differences in motivation to learn the particular material being taught in YCC. If the material were perceived to be less relevant to people from these two groups, then the motivation to learn would be lower. The present data are not suited to discovering the true reason for the lower scores; a different kind of research would have to be undertaken to answer the question.

Other characteristics of individuals make little difference in how much is learned over the summer. Neither grade in school nor having had a science course are factors in the amount learned. There is some small tendency for girls to improve more than boys.

We looked for differences in learning gains related to camp characteristics. Enrollees from residential camps did as well as those from non-residential camps. Not surprisingly, enrollees in eight-week camps improved their scores more than those in four-week camps. The size of a camp -- the number of enrollees -- was unimportant to learning differences.

There are differences associated with sponsoring agency. Enrollees in camps sponsored by the Bureau of Reclamation and National Park Service had higher average gain scores than those in other agencies. Some of this could be due to differences in the particular enrollees, or to the chance occurrence of getting better-prepared staff. But it could also be due to particular teaching approaches advocated by these two agencies. The YCC sponsors should explore this further with the agencies to discover if their formula for teaching is better than others and therefore should be shared with the other agencies.

Camper ratings of several factors in camp were associated with higher gain scores in EE. Four highly interrelated measures predict positively to gain scores. These are ratings of the quality of the staff, of the EE program, of staff-camper interpersonal relations, and of camper participation in camp governance. Because of the high interrelationship among the measures, it is necessary to think of them together. The data seem to be saying that campers learn more in those camps with the following characteris-

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[3]For a number of statistical reasons, analyzing gain scores is frequently not recommended. However, several analyses of the YCC data suggested that a gain score analysis would be appropriate. For one, the individual background measures showed the same pattern of relationship with both pre- and post-test scores. Second, the verbal skills measure had a correlation of .01 with the change score, indicating that gains in environmental knowledge were not related to an enrollee's academic ability.

Table 5-3

*Predicting To Gain Scores on Environmental Knowledge Using Several Predictors Simultaneously**

Average Gain Score: 7.5 points  Standard Deviation: 14.8 points

| Predictors** | Beta*** |
|---|---|
| **Individual Characteristics** | |
| Race: Black (5.5), Indian (2.2), Spanish (10.0), White (7.8) Oriental (9.2) | .09 |
| Sex: Male (6.4), Female (8.8) | .08 |
| (Verbal skills, Grade in school, Parents' education, Size of home town, had a science course in high school, had prior camping experience: did not explain any of the differences in gain scores) | |
| **Camp Characteristics (Objective)** | |
| Agency: above average -- Nat'l. Park Serv. (9.8), Bur. Rec. (11.3) | .09 |
| Length of session: 4-weeks (5.9), 8-weeks (8.0) | .06 |
| (Residential/non-residential, Number of campers: did not explain any of the differences in gain scores) | |
| **Camp Characteristics (Subjective)** | |
| IRP: low level (4.8) ... high level (9.3) | .14 |
| (Rating of staff, Rating of EE program: these measures are strongly associated with IRP and also predict positively to gain. The strong association means that IRP in this analysis stands for these other two ratings as well) | |

Total variation in gain scores explained by using the best predictors simultaneously (Multiple $R^2$) is 4.5%.

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*See Appendix E, Technical Tables, for more complete results of this Multiple Classification Analysis.

**Number in parentheses after each category is the adjusted mean gain score for that category.

***Beta is a measure of the relative importance of the predictor.

tics. The staff is concerned for and knowledgeable about the environment; and they relate well with campers. In addition campers are likely to participate some in making decisions that affect the way that work gets done or the camp is run.

Having highlighted the several factors that predict to difference in gain scores, we must point out that the size of their relationship is in all cases small. All of these factors taken together can account for only a small fraction of the variation in learning over the summer. Eighteen percent of the variance in learning can be accounted for by knowing which camp an individual attended, while 4.5 percent of the variance in learning can be accounted for by the characteristics of the individuals plus the measured characteristics of the camps. This leaves a majority of the variation between camps unaccounted for by factors which we measured. Some of these factors concern traits of the individuals in those camps; others concern the quality of the EE program and the nature of the camp environment as a place for learning.

One other finding is worth noting. At the end of the 1973 season, Phil DeLongchamps of the Department of Interior sent a questionnaire to the EE instructors in Interior camps. He asked a large number of questions about the program and how it was run. For the 33 camps that returned the questionnaire we looked for relationships between these items and EE gain. Only one item showed a relationship. "Did you prepare an environmental education training program for staff during staff orientation?" (Part III, #16) Those who responded "yes" were in camps where the enrollees showed higher gain scores. A more complete set of data would be necessary before we could generalize about this finding, but it is suggestive that it is helpful to have the staff be oriented to the EE program before camp begins. The impact of this training may be to enable staff other than the EE instructor to carry on some of the teaching load during times when the EE instructor is not around. The training could also be helpful simply because the non-teaching staff become supportive of the EE program and they convey this to the enrollees. We suggest that this type of staff training be done where possible and further attempts be made to see if it is really helpful to enrollee learning.

## SOME ECOLOGICAL LEARNINGS THAT WERE NOT MEASURED BY THE TEST

According to the stated objectives for environmental learning, the concepts measured in the test are certainly not the only ones of interest. But they are probably the only ones which can be reasonably measured by a group administered paper-and-pencil test. In our visits to many camps, we noted another type of learning which had occurred which we feel is equally important, but which simply cannot be quantified. A number of examples come to mind. In a campground in California, a girl told us that although the area was very near her home, it had never meant much to her or her friends. After four weeks of landscaping the campground, she had a new perspective on the area. Now she took pride in how it looks and she told us, after pausing to go pick up an empty beer can she had spotted in the bushes, that she doesn't like the way some people mistreat the facilities. What she had acquired was not so much new knowledge as a heightened awareness and sensitivity to the value of

one kind of natural resource: a clean campground. In another camp, a boy interrupted a conversation to point out excitedly the appearance of a whooping crane. The look on his face showed that he had gained a new appreciation for that bird and an interest in seeing its continued existence. Such an appreciation doesn't come simply as a result of learning the fact that the whooping crane is an endangered species. In a camp in Utah, the enrollees voted to turn off the electricity at certain times of the day in order to conserve an energy resource. In another camp in the East, the enrollees found a pond that was frequently used by local people and which was full of used plastic bottles and other assorted debris. They volunteered to clean it out as an extra project. Afterwards they decided to put the items on display in the center of town. The newspaper, to help "raise the consciousness" of those who used the area most, gladly ran a story on the project.

All of these examples demonstrate that enrollees in YCC can learn an appreciation for an unspoiled natural environment and they frequently acquire a new sensitivity to man's impact which fits perfectly the sense of the legislation that created the YCC: "...it is the purpose of this Act to further the development and maintenance of the natural resources of the United States by the youth, upon whom will fall the ultimate responsibility for maintaining and managing these resources for the American people." It is learnings such as these which paper-and-pencil tests cannot measure, but which we observed in many of the camps which we visited.

## THE TEST AND TESTING

The environmental knowledge test which was developed for the 1973 YCC program stands alone, as far as we know, as a measure of knowledge about ecological principles and resource management. Our assessment of the test is that it does a good job in this area. Its biggest weakness is one that plagues most science tests: performance is tied to general academic skills, especially vocabulary. This reservation aside, we feel that the test can be a useful tool in future years, both as a diagnostic tool for individual camp instructors and as an overall assessment tool for the larger program. But it has to be remembered that the test does not measure all of the objectives of the environmental education program. Earlier in this chapter we noted a number of objectives which could best be measured by the staff of the camp. While staff might be left to their own resources to devise ways of measuring growth in these areas, Washington might want to consider developing simple forms which environmental instructors might use to note the attainment of these other objectives. For example, a form might have a box to be checked to indicate that an enrollee had identified a local environmental problem and prescribed two alternate ways to solve the problem (Objective 6b). This same sheet might be used to record the enrollee's test scores as well and thus could provide a more comprehensive picture of how well the entire set of learning objectives had been achieved by each camper.

This approach suggests a related modification in the program monitoring effort. Presently, each camp sends to Washington its scores on the standard test. These are pooled to get program-wide data which can be used to demonstrate how much learning takes place in the YCC program. Adding the data from staff ratings would provide a more complete picture of the range of ecological learnings that can occur in a YCC setting. Whether such data could be accurately reported by camp staff is an issue that would have to be considered further by the Washington staff.

Related to the whole testing program is the question of shared objectives. It is clear from visits to the camps that the objectives stated in the Source Book are not followed to the same extent by all camps. Some instructors think that the list is suggestive at best and that there are other objectives which are more important. More frequently, however, the deviation is not purposeful. Many instructors have not consulted the Source Book and read the complete set of objectives. If part of the training for all environmental education instructors included a discussion of the entire set of objectives, there would probably be a more uniform acceptance of them and more widespread attempts to include the full range of educational goals in each camp's environmental education program.

Chapter 6

# AN EXPERIMENT IN SURVEY DATA FEEDBACK TO HELP YCC CAMP STAFF

## INTRODUCTION

In this chapter we will describe briefly a "field experiment" conducted during 1973 which had two purposes:

(1) to test the usefulness for YCC camp staff of different methods of feeding back data, collected from campers during the first week of camp. These data deal with camper reactions to YCC, and with interpersonal relationships between staff and campers, and camper participation in making camp decisions.

(2) to test the feasibility of using the computer to produce data feedback reports, as one of the "methods" to be tried.

This effort grew out of our experiences in evaluating YCC during its first two years, and out of our concern for providing real help to camp staffs during their sessions. The basic assumption was that staff members could do a better job in managing their camp if they had more information about the perceptions and needs of their campers, particularly in the areas of interpersonal relationships and participation -- two factors which have proved to be important in the past evaluations, and which are central to modern organizational theory. A brief chronology of the past years' work will help set the context for this experiment.

## A CHRONOLOGY OF CONCERNS IN THE YCC EVALUATION

In the first year of YCC the new YCC program was an unknown quantity, and the researchers at the Institute for Social Research (ISR) cast a very broad net. Data on camper attitudes toward the environment, YCC, their peers and staff, camp experiences, self-concept changes, recreation and work skills, and environmental knowledge were collected. Within this wide variety of information, the analysis pointed to a need for increased attention to YCC's environmental education program, and demonstrated the overall flexibility and adaptability of campers to the strenuous, often spartan environment of the camps. The findings also indicated a strong positive relation between campers' ratings of their interpersonal relationships with staff and the amount they were permitted to participate in making decisions, on one hand, and their satisfaction with their experiences and environmental learning on the other.

In the second year the research was not substantially altered. Since YCC planners did make changes to increase the emphasis given to environmental education, the survey instruments also increased the amount of measurement given over to EE. Again, the analysis continued to show a positive relation between staff-camper interpersonal relationships and participation and satisfaction and learning.

By the beginning of the third year of YCC and the evaluation of it, there was a general feeling among both agency and ISR staff that the data were valid and useful indicators of the way the camps were functioning. We also had begun to hear from camp staffs, who told us they would like to have results for their own use. Results on EE and the interpersonal relationship and participation areas seemed most important, and the most likely candidates for some attempt to return the findings to camp staff by some "feedback" mechanism. This desire also fit within our own interest of developing and testing the effects of different methods for putting research knowledge into use. In particular, we saw a chance to test the potential of using the computer to take over the task of producing feedback reports for individual camps. (We noted early that rapid growth in the size of YCC would make the desired feedback very difficult to produce otherwise.) Therefore, a field experiment was planned to test several alternative ways of providing camp staff members with survey feedback. The notion was to compare the effects of the computer-written report (or actually, two versions of it) with in-person feedback conducted by ISR staff members who would visit randomly selected camps. The data collection instruments were streamlined, and the EE instrument was provided to camps along with self-scoring keys to allow staff members to get a quick picture of the EE needs of their campers.

Thus, the whole thrust of the evaluation was in transition from evaluation to providing help, based on data, to camp staff members. The streamlined instruments and the data feedback experiment were both based on several important assumptions about how survey data must be presented in order to be used by managers: (a) the data must be specific to the particular camp, and relevant to the on-going camp program; (b) the results must be returned to camps as rapidly as possible to be used within the short camp sessions; (c) staff members must be active rather than passive in using the data, and must learn to make their own interpretations from the results, rather than depending on outside "consultants"; and (d) people need help in learning how to use survey data -- that is, the results should be linked to suggestions about how to interpret them and put them into use.

## THE FIELD EXPERIMENT

The main question for the experiment was this: could we, through three different ways of providing feedback to YCC staffs, produce an increase in those camp factors directly and indirectly related to the content of the feedback? As we have said, most of the feedback dealt with reactions to YCC (satisfaction and feelings of YCC's worthwhileness) and camper-staff relations

and camper participation. If the feedback was successful in helping staffs produce changes to improve these areas, then end-of-camp scores for these measures should go up. Indirect effects, on such things as EE learning and camp productivity in work projects might also happen, if the feedback led to the staff learning how to solve problems better. Of course, the experiment needed to be designed to control for other things, such as camper background factors, which we knew related to interpersonal relationships, participation, learning, and satisfaction.

The first effects of feedback should be on the staff members themselves, and so we designed a short questionnaire for camp directors, to get their evaluations of the form and effects of the feedback, and their assessments of changes in camp during the summer.

Before turning to the results, we need a bit more elaboration of (1) the measures to be used to assess effects of feedback, and (2) the actual experimental design.

Measures Used. As we've said, the feedback dealt with satisfaction, and in great detail with camper-staff interpersonal relationships (what we will call the "IR" measures) and camper participation in camp decision-making (the "P" measures). Also, we developed some more detailed measures of "actual" and "ideal" participation, the amounts campers wanted and thought they had in four areas (work, EE, recreation, and camp discipline). We were also concerned with the Environmental Education ("EE") test scores. For all of these measures we had start-of-camp and end-of-camp data from campers, allowing us to look at the amount of change over the summer as it was related to the different kinds of feedback. In addition, several camper and camp-level descriptive measures were available, including the verbal abilities test scores. These are the explanatory measures used in the evaluation chapters of this report.

Experimental Design. We decided to work only with eight-week residential camps in the experiment, to cut down on the number of differences across camps which would have to be controlled for in the analysis. The 48 contiguous states were divided into four regions (NE, SE, NW, SW) with roughly equal numbers of such camps in each region, and then these camps were selected at random to be in one of four data feedback conditions:

(1) Control camps who would receive no feedback, and against whom the experimental effects might be compared. (15 camps: 7 F.S., and 8 Interior)

(2) Report Only camps, who would receive a computer-written data feedback report covering the findings, but without any detailed suggestions for how the staff might interpret and use them. (15 camps: 7 F.S., and 8 Interior)

(3) Report + Use camps: these received the same basic computer-written report, but this version also contained a section on how the staff might hold a problem-solving meeting to interpret the findings and design ways to change in needed areas. (16 camps: 4 F.S., and 12 Interior)

(4) Visit camps: we assumed that the maximum effects of feedback would be in those camps which received a visit from an ISR staff person, who would first familiarize himself with the camp and its possible problems, and then conduct a data feedback meeting along the same lines as in condition 3. (12 camps: 7 F.S., and 5 Interior)

Unfortunately, rapidly designed and executed field experiments often fall victim to errors, and we suffered one in this study which will severely limit our ability to test the effects of feedback: through a clerical error on the part of one of the investigators, data from the Control camps entered the processing sequence which produced the computer-written reports. Thus, the Control camps were automatically sent a feedback report -- effectively eliminating our control capability, and making it impossible for us to compare no feedback vs. any feedback or different types of feedback. For the rest of this report, therefore, we will be talking only about Conditions two, three, and four above. We also found that our random assignment of camps to experimental conditions was not perfect, and that there were some significant differences across the three conditions on start-of-camp ("pre-test") scores. This complicated the analysis task in that we were forced to statistically "control for" pre-test differences before doing any analyses.

With these difficulties in mind, we may now move on to what we found about differences among the three types of feedback which were provided to camps. The discussion will be brief, however, and readers interested in more detail in both the design of the computer report-writer and the design and results of the experiment are invited to read the technical report which covers these areas (Lingwood and Morris, 1973).

## RESULTS OF THE EXPERIMENT

Let's begin with the results obtained from the survey of camp directors. First, we found that there were relatively few significant differences among the directors in the three data feedback conditions. Directors who received an ISR staff feedback visit were more likely to have used the information in formal feedback meetings with the campers themselves, and these directors were more satisfied with the effects of feedback on their camps. Those directors who received help on the process of how to use the information, either through the visits or through the "Use" part of the Report + Use condition were more likely to have held formal feedback meetings with their staffs. Of course, the feedback meeting was always a part of the ISR Visit, so we are really seeing here an effect of the Use part of the report in increasing the frequency of staff meetings. There were no significant differences among the three groups of directors either in the extent feedback helped their camp improve in several areas (e.g., staff understanding of campers, the EE program, etc.), or in changes they saw in their camps across the summer.

Part of the difficulty in the staff questionnaire analysis proved to be non-response on the part of some directors (87% of the Report Only directors, 75% from the Report + Use condition, and 92% of Visit directors responded). More serious, however, was the fact that those directors who did not respond came from camps in which the measures of camper participation in decision-making were lower, both at the start and at the end of camp. This effectively prohibited us from adding director's responses into the analyses of the camper data.

When we moved on to the analyses of data from the campers, we were at first somewhat shocked by the results. Our assumption had been that "more" feedback should lead to greater improvements in the topics of feedback, in particular the measures of interpersonal relations and participation, and then some indirect improvements in such things as campers' EE learning. We assumed that the Visit condition would provide higher levels of information to the staffs than the written reports, and that the Report + Use condition should be better than the condition in which staff members received the Report, but without suggestions for use of the information it contained.

On the first attempts at analysis, however, we found that the campers in the Visit condition had significantly lower ratings than campers in the other conditions on the end-of-camp measures of interpersonal relations and participation. They also rated lower their actual participation in four areas of camp, but higher the amount of participation they thought they should have in these areas. These differences remained even when start-of-camp differences across the conditions were controlled for.

This finding is definitely counter to the one we had hypothesized we would find. We then set out to determine what other differences in camps might be accounting for this result since causal interpretations or recommendations for policy are completely unwarranted unless we can demonstrate with certainty that the differences are not the effect of some other factor operating in the background.

More detailed analysis showed that we could associate the negative effect in the Visit condition primarily with whites in predominantly white camps (more than 80 percent white). In addition, there were rarely any differences in the end-of-camp measures if we looked only at non-white campers. In other words, the different feedback conditions did not seem to lead to different results for non-whites. This finding led us to redo all of our analyses separately by race of respondent and racial composition of the camp.

Before we go on to list the findings according to both the race of camper and racial composition of the camp, however, we need to note that even if the effect remains, we cannot be sure that these findings are valid for two reasons: (1) the loss of the control condition, and (2) the fact that random assignment of camps to conditions seems to have been imperfect -- the camps differed on some start-of-camp measures. When we put race of camper and camp racial composition together, we get four types of campers. In Figure 6-1 we have summarized the findings for these four groups.

Figure 6-1

*Experimental Results According to Race and Camp Racial Composition*

(A) For Whites in Predominantly White Camps:

This is the group for which the effects of the Visit condition were clearly the least favorable. These Visit campers were lowest on the interpersonal relations and participation post-camp scores, compared with similar campers in other conditions. The Visit condition also had lowest ratings of the staff, fellow campers, and the EE program, and least gain in EE learning. This is what did occur -- later we will talk about why it might have occurred.

(B) For Non-Whites in Predominantly White Camps:

Results for this group of campers looked very similar to those for whites in such camps (above), though we found fewer significant differences across the conditions in this group. It looks as if these non-whites just can't be differentiated well from their white peers in terms of the way they respond across the conditions.

(C) For Whites in More Integrated Camps:

Whites in camps which were less than 80 percent white showed a markedly different pattern, even though there were fewer measures on which the three experimental conditions differed significantly. In rating living conditions and the work accomplished over the summer, the campers in the Report + Use condition scored high, though Visit campers remained lowest. On the other hand, there was a strong tendency among whites for the amount of EE learning to increase as the level of feedback increased from the Report Only to the Visit condition.

(D) For Non-Whites in More Integrated Camps:

There were absolutely no significant differences across the three types of feedback on any measures available for this group.

So, the data are saying that the negative effects of Visit feedback seem to be associated primarily with white campers in predominantly white camps. This result remained, no matter what differences in camps we attempted to control for (for example, region of the country or agency). At the same time, we continued to find in further tests that in the more integrated camps, whites seemed to be gaining more in EE learning if they also got a feedback visit.

We still, however, cannot justify the conclusion that visits "don't work" for whites in highly white camps. It is still entirely possible, for example, that the random assignment was faulty on some factor or set of factors which

we have not measured. For example, we might have picked for the Visit condition camps in which the staff were less well prepared, or more negative, or in which the soup was cold, for that matter. We simply do not have enough data which can be used for statistical controls in order to give us the confidence we would need to make policy recommendations based on the findings.

We do need to speculate on some possible explanations for the negative findings. It could be that in white camps the Visits increased the expectations of whites for participation in making decisions, and when their participation did not increase, they reacted by rating IRP and staff more negatively. Another possibility is that, as a result of the visit, these campers became more sensitive to the quality of interpersonal relations or to the amount they participated in making decisions. There are a large number of hypotheses which could cover these results, but the point is that we have no way to choose among them.

In large part, the experiment is still suffering from the loss of the control group of camps. We have not been able to say anything about the effects of any feedback vs. no feedback. These are faults which can only be corrected by repeating our study of effects of types of feedback in the 1974 camps.

As we look forward toward the 1974 study, however, we see a need to modify the design to provide much more explicit help for camps in the area of staff problem-solving skills, since these skills seem related to whether a staff is able to utilize the kind of information contained in our report. Our experimental design will thus look at the effects of helping staff members learn good problem-solving, with the additional effects of giving them feedback of campers' reactions to the camp and problems within it from their viewpoint.

## Chapter 7

## SUMMARY AND RECOMMENDATIONS

This chapter is divided into three parts. The first part reviews our major findings from an evaluation of the 1973 Youth Conservation Corps (YCC) program. The second part reviews an experiment which we conducted on ways to feed management data back to camp staffs. The third part contains recommendations based on both the empirical findings and on our observations made during visits to 18 of the camps.

### EVALUATION OF THE 1973 PROGRAM

The summary of findings is drawn from the analyses presented in earlier chapters. The findings and conclusions are organized here by chapter content. The reader who is interested in the statistical basis for any of the findings is advised to refer to the appropriate chapter.

Characteristics of Corps Members. The legislation establishing the YCC stipulated that, "The Corps shall be open to youth of both sexes and youth of all social, economic, and racial classifications...". In the first two years of the program we concluded that participants in the program represented a reasonable cross-section of teenagers throughout the United States. However, there was some degree of under-representation of girls, Blacks, and those from very large cities. In 1973 the proportion of girls in the program was much larger than in either of the previous years. Forty-eight percent of the enrollees were female and this is almost identical to the national distribution among 15-19 year olds (49 percent). The family income data show that enrollees came from varied economic backgrounds. The median income was $10,990. Using census data for 1972, this is only slightly below the national average for families of an age to have teenage children. Looking more carefully at the distribution of family income, we noted that the middle range ($5,000 - $15,000) is somewhat over-represented while the top (over $15,000) range is under-represented. Racially, there continues to be about the same percentage of minorities in the program as there are nationally -- 20 percent in YCC vs. 19 percent nationally for all 15-19 year olds. However, among minorities in YCC, the proportions of American Indian, Spanish surname, and Oriental youths are the same or larger than the national rates, while the proportion of Black youth is one-half the national rate. While there was a small increase this year in the proportion of enrollees from large metropolitan areas, there was still a tendency for youth to be recruited from the smaller population areas.

This year, we can describe the campers on one other dimension, verbal skills. In order to better understand performance of campers on the environmental education test, we had camp staffs administer a test of verbal skills

at the beginning of camp. The test can be thought of as a measure of general academic ability. Comparing the results with the national norms for the test indicated the following. The average academic ability of enrollees who had just completed the ninth grade matched the national average. But the average of those who had completed the tenth grade and higher was considerably above the national norms. This indicates that typical YCC enrollees are academically among the better students in their classes. The implications of this point for learning and test performance will be discussed shortly.

The data on the characteristics of enrollees are presented because there is a need to evaluate how well the program did in meeting the legislative requirement of "openness to all." The particular judgment one makes depends on how one thinks about the issue. The Congressional Act creating the YCC states two things about the population to be served. In the introduction it says that the gainful employment of "American youth, representing all segments of society" is good. Later it stipulates that, "the Corps shall be open to youth of both sexes and youth of all social, economic and racial classifications..." The main criterion appears to be the "openness" of the program to all. We interpret this to mean that youth between the ages of 15 and 18, of both sexes, and from all backgrounds should feel that the program is open to them in the sense that if they are interested in participating, and they meet the minimum qualifications, then they have as good a chance as any other teenager of being selected to participate. By this interpretation, the proof of the program's openness does not lie entirely in the numbers of different subgroups who are in the program. First of all, there is the matter of attractiveness. It is implicit in the program's description that a YCC candidate will be interested in three things: gainful employment at the current YCC wage rate, living and working outdoors, and development and maintenance of the nation's natural resources as they are manifested in National Forests, National Parks, and public domain lands. But it is doubtful that these things have universal appeal among all groups of youth. Many urban youth may have no desire to spend eight weeks in the woods. Indeed, we have talked to some urban Black youth for whom the non-urban environment of a National Forest holds little appeal. On a different dimension -- economics -- we know of one Indian tribe where many teenagers prefer to work in a nearby tourist town rather than join YCC because they can earn much more money.

The most relevant criteria to be considered in judging the program's openness is the recruitment procedure which is used to generate the pool of applicants, and the selection procedure by which some applicants are accepted and others rejected. Recruitment procedures varied quite a bit around the nation. But a typical procedure involved a YCC representative going to a high school and describing the program in a school assembly. Given the number of available personnel and the size of the Pilot Program, such presentations were made in only a small fraction of the total number of schools in a state. In some cases there was no assembly and a school counselor was asked to disseminate the basic facts about the program. In either case, the school counselor was asked to help with the recruitment by spreading the word and coordinating the application process. One of the implicit criteria for selection into the program is that the applicant have an interest in conservation or in learning about development and maintenance of natural resources.

This alone limits the number of youth whom a counselor may consider as possible candidates (and thus encourage or discourage them to participate). Another criterion clearly eliminates individuals who have broken the law or who are known to have used drugs. Then there are some assumptions which the counselor must make on the basis of the application form. To be considered for YCC, an enrollee must secure a recommendation from an adult (typically a teacher or counselor). This person is asked to rate the applicant on five characteristics: "Academic rating, Dependability, Relationship with others, Leadership ability, Ability to take directions." Inevitably, these several criteria result in "better" youth being approached and/or selected. By "better" is meant those who stand out as being interested, enthusiastic, cooperative, and -- as our data on verbal skills show -- above average academically. Inevitably, all of these many filters have the effect of limiting interest and participation of some groups of teenagers.

The point of all this discussion is to underscore the difficulty of evaluating how "open" a program such as YCC is to youth of all backgrounds; and that such a judgment has to consider not only the presence of youth from many different backgrounds, but also the extent to which the program was made known to all groups, the nature of the program (its appeal, if you will), and the requirements laid down for the selection of participants.

From our perspective, we think the program has done a good job in obtaining the participation of teenagers of both sexes and teenagers from a broad spectrum of social, economic, and racial backgrounds. A notable exception concerns Blacks. It is not clear whether this is due to limitations in recruitment or more simply to a lack of appeal of YCC to these youth. As an aside, we find it refreshing to find a federal program which is aimed both at middle class Americans as well as various underprivileged or deprived groups in society.

Corps Member Evaluation of the Program. To begin our assessment of enrollee response to YCC we examined some global measures of camper satisfaction with the YCC program. For the third year in a row, enrollees indicated very high satisfaction with the program. This conclusion is based on their responses to two questions, one which asked how much they liked their experience, and another which asked how worthwhile it had been for them. We looked for differences in satisfaction for various characteristics of campers including sex, grade, age, parents' education, urban/rural home environment, prior camping experience, and racial background. The only systematic differences we found were related to race. In particular it appeared that American Indian youth and Blacks displayed slightly lower levels of satisfaction than others. An accurate summary of racial differences would be that Blacks and Indians like the YCC experience, but are less extreme in checking a rating scale.

We also looked for differences related to camp characteristics such as four-week/eight-week, residential/non-residential, and number of campers. There is a slight tendency for higher satisfaction scores to be associated with eight-week residential camps; these differences, however, are quite small.

Associated with high levels of satisfaction were higher camper ratings of: (1) the quality of the staff (their commitment to YCC, their knowledge of the environment, etc.); (2) the quality of interpersonal relations between staff and campers; (3) the quality of the Environmental Education program; (4) the commitment of other enrollees to the objectives of YCC; and (5) the extent to which they as enrollees had some input into the way the camp was run.

Enrollees were also asked how their YCC experience compared with other summer jobs for people their age. The average was very high with 83 percent overall indicating that YCC was "excellent" or "very good." Again, American Indian and Black youth rated the job high, but somewhat lower on the average than did other racial groups. (Rating YCC as an "excellent" or "very good" job: whites 85 percent, Indians 71 percent, and Blacks 65 percent.) Boys rated the YCC job higher than girls, perhaps reflecting the fact that in our culture securing a summer job is more important for a teenage boy than girl.

One of the Congressional objectives for the program is to provide "gainful employment" for teenagers. In practice, this has worked out to mean compensating enrollees with $300 - $400 for an eight-week summer. We asked the enrollees to rate the amount of money they earned compared to what they felt they could earn at another summer job back home. Their responses ranged from "good" to "fair" (scale: excellent to poor). It is not clear that enrollees actually could command higher compensation back home, but clearly their enthusiasm for the program is not tied closely to their feelings about the pay.

Camper Ratings of the Work Accomplished. A second stated objective of the YCC is the "development and maintenance of the natural resources of the United States..." While it is not our function to evaluate work output, we nonetheless can provide a perspective on it through the camper ratings of the work accomplished. Enrollees were asked at the end of camp to rate four aspects of the work they accomplished. They were presented a five-point scale ranging from excellent to poor. The four aspects of work were amount, quality, benefit to the environment, and benefit to the public. The ratings averaged from "very good" to "excellent." As the campers looked back on the products of their labor, they thought quite highly of it and thought that it made a real contribution to the public and the environment. We feel this is a strong point of the program when viewed from the perspective of the developmental needs of adolescents in our society. As society asks youth to wait longer to assume positions of responsibility in the normal world of work, they are deprived of those experiences which can give them some sense of belonging to, and responsibility for, the country around them. YCC may help to offset the more typical pattern, and in so doing, contribute to participants' self esteem and feelings of adequacy in addition to benefitting the environment.

Learnings. The designers of YCC hoped that youth would learn a number of things in the course of the summer. One was an "understanding and appreciation...of the nation's natural environment and heritage." In past years this has meant learning how the natural environment functions and what the best ways are to use, manage, and protect the natural resources. Another

objective, to "accomplish needed conservation work on public lands" implies another area of learning: how to use the tools necessary to accomplish this work. A third set of learnings -- interpersonal relations -- grows out of the stated intention that the program objectives "will be accomplished in a manner that will provide the youth with an opportunity to acquire increased self-dignity and self-discipline, better work with and relate with peers and supervisors, and build lasting cultural bridges between youth from various social, ethnic, racial and economic backgrounds." (Above quotes from the 19/3 Supplement to the Interior-Agriculture Memorandum of Understanding Concerning Youth Conservation Corps.)

Within the limitations of a survey methodology, we attempted to assess fulfillment of these objectives in two different ways. One was through a multiple-choice test of environmental knowledge. A second approach was to ask each enrollee how much he felt he learned in these areas over the course of the summer. We will consider this second type of question first.

Enrollees were asked to rate how much they learned in seven areas. The scale points were: nothing at all, a little, pretty much, and very much. With one exception, the average ratings ranged from "pretty much" to "very much." The highest ratings were reserved for the items on how to use tools and how to work on projects that required teamwork. Close behind was the item "how to get along with people my own age." Slightly lower ratings (but still very high) were "general principles of ecology and conservation," and "how the things I do affect the environment."

Almost one-half the enrollees said they learned "very much" about how to get along better with people of different racial or ethnic groups and another 30 percent said they learned "pretty much." Variation in responses was associated with two things. One was the presence of an ethnic mix in the camp. The other was the particular camp. Some camps achieved this objective better than others. There were very few differences in the way different racial groups responded to this item, i.e., cultural exchange seemed to be a two-way street between different racial groups in a camp.

The lowest rating on learnings was reserved for, "how I can help people in my community become active in working on environmental problems." This is not surprising. In our visits to different camps, there was considerable variation in staff philosophy on this point. In some camps (largely Interior camps) there was a certain missionary zeal associated with teaching enrollees things they could do back home to conserve non-renewable resources; this included recycling bottles, minimizing use of plastic products, walking rather than driving, etc. A few environmental education programs went one step further and discussed ways that enrollees could influence their communities to set up glass recycling stations or pollution study groups. But in the majority of camps (in both Interior and Forest Service) the philosophy was to teach enrollees what things needed to be done to conserve the areas on which the corps members were working. For example, in a campground construction project, the focus was typically on how a camping area ought to be built and maintained

by those responsible for the campground and how enrollees as citizens could best use the area without upsetting the local environment. Very little attention was given to ways in which the citizenry back home might be influenced to be better campers when they come out from the city to use such a campground, or to ways that learnings associated with campground construction could be relevant to the enrollee's home community.

There is a difference, of course, between the relevance of the project itself to the home community and the relevance for the teenager's life of the learnings associated with working on the project (and with living, playing, and working with one's peers). We asked the enrollees to rate the value their learnings would have to them back home. The average ratings were high except for "how I can help people in my community become active in working on environmental problems," which as we noted before received the lowest rating as an area of learning. A single summary question asked, "in general, do you think the things you learned this summer will be valuable to you back home?" Two-thirds of the participants responded "very valuable," and another 30 percent said "somewhat valuable." However, these are the responses of youth at the end of the program, before they have had a chance to actually return to their community and test the utility of their learnings.

Several characteristics of enrollees were associated with differences in perceived learnings. Girls rated their perceived learnings higher than boys. This was true for learnings about ecology, the use of tools, and relationships with peers. This may be due to the fact that in American culture YCC-type activities are engaged in less frequently by girls than boys. Accordingly, YCC experiences are more novel for females. In the area of learnings about ecology, American Indians claim to learn the least of all groups. This may well be due to the fact that youth in the tribes represented in YCC grow up in a culture that relates to the land (environment, if you will) much more naturally than other cultures in American society. If this is true, then the YCC curriculum would not have as much to teach the native American that he did not already know. In ratings of the overall value of YCC to the back home setting there are also racial differences. Orientals rate the program highest, followed closely by whites and those of Spanish surname. Indians and Blacks rate the back home value of YCC the lowest. We think that these differences are worth further investigation to discover exactly what it is about YCC that makes it seemingly less relevant to these two cultural groups.

Ratings of learnings about teamwork were somewhat higher in residential camps and in eight-week camps. Greater perceived learning about teamwork and about ecology were associated with camps where interpersonal relations between staff and campers were rated highly and where enrollees felt they had some say in camp decision-making.

Environmental Knowledge -- A Test. For the third year in a row, a test of environmental knowledge was administered to enrollees at the beginning and end of camp. The test for 1973 was revised considerably from earlier versions. It consisted of 154 core items divided into five main topic areas: resource

management, man's impact, ecological responsibility, general ecology, and federal resource agencies. These content areas reflected those environmental education objectives which could be easily assessed by a national group-administered test.

Pretests were administered in the first week of camp. Environmental instructors were given the option this year of scoring the test in camp before sending them back to Michigan. This was done to provide the instructors with diagnostic information to help in the design of their environmental education program. The test does not measure everything that all environmental education programs are trying to teach, but it does cover most of the basic factual concepts presented in the Environmental Education Source Book (internal publication of the Departments of Interior and Agriculture). The average pretest score was 105.3 (standard deviation of 25.3). The average post-test score was 113.0 (standard deviation of 27.5 points). There are no norms for this test, i.e., there are no groups other than 1973 YCC enrollees who have taken the test against whom performance can be compared. However, some feeling for the amount of growth that took place can be obtained from a comparison of entrance and exit scores of enrollees of different grade levels. In other words, we can compare the exit scores (post-test scores) of ninth graders with the entrance scores of tenth graders, and likewise compare tenth with eleventh graders, and eleventh with twelfth graders. Such comparisons showed that ninth graders did not quite reach the tenth grade entry level, but that tenth and eleventh graders did reach the entry level of the next higher grade group. These findings lead us to the following general conclusion. On the average, tenth and eleventh graders in YCC learn as much about ecology and resource management in the course of a YCC summer as they would in a typical year in school. Ninth graders learn about as much as they would in one-half year in school. This is not to say that an eight-week ecology course in a National Forest is the equivalent of a year-long course offered by a school system. But not many students take such courses in school and much of the typical learnings in ecology come through a variety of sources including newspapers, television, courses in public affairs and courses in biology. Taking into account the haphazard way in which principles of ecology are usually learned, an eight-week summer course in YCC seems to teach as much as nine months of varied ecological inputs.

There was considerable variation in the pretest scores of individuals and also in the increase in scores between the pretest and post-test. Entrance scores were related most strongly to the verbal skill level of enrollees; this indicates that the more academically capable enrollees perform better on this test. Also related to higher initial test scores are factors such as having had a course in biology or conservation, being in a higher grade in school, and being Oriental or white. These findings sound a caution to interpreting scores on the pretest, since characteristics of the campers and their background greatly influence initial test performance.

The major focus of interest, though, is on the gain score -- the size of the increase between the beginning and end of camp regardless of what the initial scores are. Few characteristics of individuals were associated

with the amount of gain. While verbal skill level is important in determining the initial scores of enrollees, it is unrelated to the size of their gain over the course of the summer. The scores of American Indian youth showed a smaller gain than did those of other racial groups. The reason for this is unclear, but one possible explanation concerns the test itself. It may be unfair to use the same paper-and-pencil test for all groups across the country. After all, this type of achievement testing is most valued by the mainstream white culture. Later, in the recommendations section, we will discuss some research studies which could help us to better understand this difference for Indians. One other characteristic of individuals showed a small association with differences in gain scores. Girls tended to do better than boys.

Characteristics of camps such as residential/non-residential, and number of campers were unrelated to differences in gain over the summer. Enrollees in eight-week camps showed a slightly larger gain than those in four-week camps. Enrollees in camps under sponsorship of Bureau of Reclamation and NPS showed larger gains than those in BSFW or Forest Service camps. The reasons for the agency differences are not apparent from our data. However, in our visits to camps we felt that Forest Service camps were less likely to be committed to teaching the full range of objectives covered in the test. They were more likely to focus on in-depth coverage of the content covered in the six "investigations" developed by Ernie McDonald and others. The difference in emphasis alone could account for the smaller gains.

The enrollee-rated quality of interpersonal relations and participation in camp decision-making showed a small positive association with gains. There was also some evidence of larger gains in camps where the environmental education instructor provided some environmental education training for the staff during the pre-camp training period. This finding may be indicating that the most effective educational programs are those in which the responsibility for teaching about the environment is shared by all the staff, even though the major portion of the teaching is done by a single instructor.

While all of the above factors were associated with differences in gains, taken together they accounted for only a small portion of the between-camp variability in gains. In other words, there are big differences in gains associated with the particular camp in which the enrollee worked; but, with the information which we collected, we are not able to explain many of the reasons why enrollees in some camps improved more than others. The answers probably lie in camp differences in three areas: (1) The degree to which they endorse the complete set of environmental education objectives listed in the Source Book; (2) the quality of the curriculum and the quantity of the instruction; (3) and the competence of the environmental instructors as teachers.

The above discussion has all been focussed on these learnings which we were able to measure by a standardized test. As mentioned earlier, the concepts measured in the test are certainly not the only ones of interest. But they are probably the only ones which can be reasonably measured by a paper-and-pencil test. In our visits to many camps, we noted another type of learning which had occurred which we feel is equally important, but which simply cannot be quantified. A number of examples come to mind. In a campground in California, a girl told us that although the area was very near her home, it had never meant much to her or friends. However, after four weeks of landscaping the campground, she had a new perspective on the area. Now she took in how it looked and she told us, after pausing naturally to pick up an empty beer can she had spotted in the bushes, that she doesn't like the way some people mistreat the facilities. What she had acquired was not so much new knowledge as a heightened awareness and sensitivity to the value of one kind of natural resource: a clean campground. In a bird sanctuary a boy interrupted a conversation to point out excitedly the appearance of a whooping crane. The look on his face showed that he had gained a new appreciation for that bird and an interest in seeing its continued existence. Such an appreciation doesn't come simply as a result of learning the fact that the whooping crane is an endangered species. In a camp in Utah the enrollees voted to turn off the electricity at certain times of the day in order to conserve an energy resource. In another camp, the enrollees found a pond that was frequently used by local people and which was full of used plastic bottles and other assorted debris. They volunteered to clean it out as an extra project. Afterwards they decided to put the items on display in the center of town. The newspaper, to help "raise the consciousness" of those who used the area most, gladly ran a story on the project.

All of these examples demonstrate that enrollees in YCC can and do learn an appreciation for an unspoiled natural environment and they frequently acquire a new sensitivity to man's impact which fits perfectly the sense of the legislation that created the YCC: "...it is the purpose of this Act to further the development and maintenance of the natural resources of the United States by the youth, upon whom will fall the ultimate responsibility for maintaining and managing these resources for the American people." It is learnings such as these which paper-and-pencil tests cannot measure, but which we observed in many of the camps which we visited.

Participation and Interpersonal Relations. Two measures consistently showed a positive relationship to the outcomes we evaluated: (1) interpersonal relations between staff and campers, and (2) camper participation in camp decision-making. The first measure is composed of a number of items which asked the campers to rate how open, friendly and supportive staff members were. The relationship of this measure to positive ratings of the summer experience illustrates the key role that staff play in shaping the quality of the summer program. The second measure, participation in camp decision-making, is composed of six items. The items ask whether the staff asks for and uses enrollee ideas about work and recreation, whether the staff is flexible in trying new ways to do things, and whether the staff shares information on how the camp operates. The items ask about only a few of the ways in which

campers could be made to feel that they have some say in how things get done in camp. Since both interpersonal relations and participation are predictors of important outcomes in the camp, staffs should concentrate on ways to keep these dimensions as high as possible.

## AN EXPERIMENT IN DATA FEEDBACK TO CAMPS IN SESSION

In the YCC evaluations for 1971 and 1972, interpersonal relations between campers and staff, and measures of camper participation in camp decision-making were found to be important indicators of camp functioning. They were positively correlated with satisfaction and environmental learning (test scores). During the planning of the 1973 study we reasoned that, if we could find a way to get pre-test results on interpersonal relations and participation questions fed back to camp staff, and used by them to improve in these two areas, then we should increase the effectiveness of camps. Thus, a data feedback experiment was worked into the overall YCC evaluation study to assess the merits of different strategies for returning to camp staff the interpersonal relations and participation ("IRP") data.

The feedback experiment contained three experimental conditions, designed to give increasing amounts of information and help to camp staff. These conditions were:

(1) The minimum amount of feedback was given to 15 camps in the form of a computer-written feedback report, covering the IRP indices, ideal and actual camper perceptions of participation, and satisfaction.

(2) The same report, but with the addition of a section containing "process" suggestions to the camp director on how to set up a data feedback meeting with his staff. Sixteen camps were assigned to this condition.

(3) Twelve camps were selected for feedback visits by U of M project staff. A feedback meeting was held for staff, after the visitor had spent a day or so in the camp observing how the camp functioned. This was called the "Visit" condition.

Camps were randomly assigned to one of three experimental conditions, or to a control condition in which the camp received no feedback at all. Only eight-week residential camps were used in the experiment.

Unfortunately, we are not able to say that data feedback of any type is more helpful than no feedback at all. Due to a clerical error, all camps received some form of data feedback and so we lost the "control" camps. Among different types of feedback, condition number two (condition number three) in terms of improving staff-camper interpersonal relations and camper participation

in program decision-making. However, an unexpected outcome resulted from our visits to the twelve camps in the "visit" condition. In the course of presenting data at staff meetings, we were frequently able to help the staff identify camp problems which no one had yet expressed, but which were barriers to smooth camp functioning. At the same time we were able to help them begin to develop alternative ways to solve these problems. Typical of such problems were: inadequate supplies of tools and materials, coordination of staff for work projects, weaknesses in the environmental education program, and problems in the area of relationships between the camp and its sponsoring agency. Thus, in addition to providing feedback on camper feelings and perceptions, we found ourselves providing consultative help on small group problem-solving skills. Not unlike what we find in other organizational settings such as business and industry, staff groups often benefit from specific help in defining and practicing the skills necessary for effective group problem-solving. It appears that this help might be even more appropriate in a YCC staff which has had, in most cases, little previous experience solving problems as a group. In a program lasting only eight weeks, it is important that the staff be effective problem solvers from the very first day. In the final section of this summary we include a specific recommendation related to staff training and development in the area of group problem-solving.

## RECOMMENDATIONS

To complete this report, we offer a series of recommendations. These are based on our analyses of questionnaire data from enrollees and on our experiences with YCC during this last year.

Staff Training and Development. As discussed in the previous section, staff training in problem-solving skills should be an essential component of both the spring training sessions and each camp's pre-camp staff training session. In the spring session, key staff (project manager, camp director, environmental education instructor) should be given training in the techniques of staff problem-solving. This type of training teaches key staff members ways to identify and solve problems which might arise in the course of the summer. In a program of such short duration it is imperative that staff have these skills to help them identify and deal with problems as soon as they are "sensed" by any one member of the staff. Each camp director should then be provided with the necessary materials to help him run a similar training session for his own staff.

We recommend the continuation of Interior's regional training model which brings together project managers, camp directors, and environmental education instructors in the same training session. To improve the workshops, we recommend that each regional training team have an expert in workshop design as a member of the team. These experts can be found at any number of institutions throughout the country. Currently the teams are composed of outstanding staff members from various camps. Although these people have the

expertise to fill their YCC job well, few of them have had the experience of designing an integrated training experience for other people in their position. A single expert could advise the team both on overall workshop design and on individual presentations. In this way the strengths of the model -- team building, problem sharing, understanding and communication of objectives and standard procedures -- could be enhanced.

Support for Environmental Education Programs. In our visits to camps and to training sessions we noted great variability in the quality of the environmental education program. This is not surprising; an ideal environmental education teacher has a background in biology and natural resource management, and is an expert in ecological problems of all types. In addition he is experienced in teaching adolescents, knows how to delegate some of his teaching role to the work leaders, and is able to improvise a lesson at a moment's notice. It is hard to find individuals with all of these qualifications. Some form of training is required to improve the skills of the environmental educators. Currently this training consists primarily of one session in the springtime lasting from one to five days. This may be sufficient for the better prepared teachers, but not all teachers. Some need additional support in the field during the summer. An example of what we have in mind exists in one region of the Forest Service. The regional office supports a person whose position is that of an "extension agent." This person visits camps, helps diagnose work projects to identify their ecological relevance, and bolsters the skills of those responsible for the teaching of environmental education. For such a person to provide effective support for teachers in the field requires more than subject matter expertise; such an individual needs to have skills in interpersonal relations, consultant skills (helping the teacher to diagnose his own problems), and an appreciation for the dynamics of the whole YCC program to know how ecological studies fits into a program in which it is only one of a number of important objectives. Our recommendation is that the agencies examine the possibility of providing more of these "extension agents" for those camps which need it.

Use of Ecological Learnings. Much effort has been devoted to the development of a curriculum about basic principles of ecology (the Source Book, etc.). However the links between such knowledge and its application back home have not been developed as much as they should. We recommend that camp staffs help enrollees derive ways in which they can use their ecological learnings when they get back home.

To emphasize the importance of such knowledge utilization, we recommend that the agencies set up a conference concerned specifically with the problem of how this knowledge can be made more relevant to back home settings. The conference should include both content people (i.e., environmental education experts) and process people (i.e., those with expertise in knowledge dissemination and utilization). The product of such a meeting would be specific ways in which camp staffs could improve the knowledge transfer process in their camps.

Testing Environmental Knowledge. In the first three years of the program, it was necessary to measure how much enrollees learned about ecology over the course of the summer in order to demonstrate the effectiveness

of the program. To meet this need, we developed a multiple-choice test which could be easily administered in camps throughout the U.S. The test serves this purpose, but it has some limitations. The program has a number of educational objectives, the attainment of which are not easily measured by the multiple-choice format which was used in this test. Examples of these objectives are discussed in Chapter 5. Now that a test exists which measures knowledge of some of the more academic aspects of ecology and resource management, additional effort should be devoted to measuring growth in such areas as sensitivity to environmental problems, recognition of the complexity which characterizes most environmental problems and their solutions, and the impact of one's own behaviors on the stability of the ecosystem.

Before this additional effort takes place, we recommend that the agencies make a thorough review of the purposes which testing is to play in the YCC program. There are several possible: (1) evaluating overall growth in environmental knowledge in order to monitor the program as a whole; (2) evaluating the performance of specific camp programs; and (3) providing a diagnostic tool to help an enrollee (or his instructor) identify those subject areas which most need to be studied. The present test serves the first purpose best. To best meet the other two purposes, additional instrument development is recommended.

Measurement of Enrollee Response to YCC. In order to provide camp staff with data from enrollees which can be used in planning and improving the overall program, we recommend continuing the collection of questionnaire data from campers and experimentation with the most effective methods of feeding these data back to camp staff rapidly.

Minority Involvement. Throughout our analyses of camper data, we found that Blacks and American Indians consistently showed lower evaluations of YCC. In addition, Indian youth appeared to learn less about ecology as measured by our test of environmental knowledge. In order to gain further understanding of these phenomena, we propose doing a cultural study involving both consultation with cultural experts and in-camp interviewing and observation of poential cultural influences on the program as well as minority feelings toward the YCC program.

We have noted in our visits to camp and to regional training sessions the limited number of minority staff people. In addition to the continuing current emphasis on recruitment of minority enrollees, we think it is essential that more minorities be represented in staff positions.

We noted earlier the under-representation of Black youth among the YCC enrollees. We hesitate to make any recommendation in this area, because 1974 statewide recruiting may alleviate this problem. However, we felt it essential that attention be called to this area.

In summary, we find Youth Conservation Corps to be a relevant, exciting program which provides some outstanding opportunities for adolescents throughout the United States. Our recommendations concern ways to make an already good program even better.

# APPENDIX A

## A Computerized Report Generator

# YCC CAMP FEEDBACK REPORT

This is our report to you, the YCC camp staff, about the results of one of the questionnaires you administered to your campers a short time ago. In our past two years of research we have identified several things which relate to satisfaction campers feel with their YCC experience, and to the amount they learn in environmental education. These are also things which you as staff can work to change, if need be, to increase satisfaction and learning.

We have prepared this report to tell you the results of that part of the survey dealing with interpersonal relations your campers took during the second week of camp. Last year we found that:

-- Campers who say their staff allowed them to participate in planning and running the camp were more satisfied, and learned more.

-- Campers who said their staff was more open, friendly, and interested in them learned more and were more satisfied.

So, our report to you will look at the ratings given your staff by campers, plus how your campers feel about the YCC program so far this Summer. We will often use last year's results for comparison purposes. We will also make suggestions for things you might want to try out, or pay special attention to in your camp.

Let's begin.

## FEELINGS ABOUT YCC

We will begin with a quick look at what your campers say about how much they like YCC, and how worthwhile it has been for them so far this Summer. Let's look at the distributions on these two measures for your camp:

HISTOGRAM/FREQUENCIES

| MIDPOINT | COUNT | FOR SATISFAC (EACH X =1) |
|---|---|---|
| 1.0000 | 12 | +XXXXXXXXXXXX |
| 2.0000 | 17 | +XXXXXXXXXXXXXXXXX |
| 3.0000 | 2 | +XX |
| 4.0000 | 2 | +XX |
| 5.0000 | 0 | + |
| MISSING | 3 | |
| TOTAL | 36 | ( 1.0000 = INTERVAL WIDTH) |

```
HISTOGRAM/FREQUENCIES

MIDPOINT     COUNT FOR WRTHWHLE      (EACH X =1)

 1.0000        24 +XXXXXXXXXXXXXXXXXXXXXXX
 2.0000        11 +XXXXXXXXXXX
 3.0000         1 +X
 4.0000         0 +

 TOTAL         36   ( 1.0000     = INTERVAL WIDTH)
```

(KEY: scores of "1" represent "I really like it" and "5" means "really dislike it" for the SATISFACTION question. On WORTHWHILENESS, "1" means "very worthwhile" and "4" is "not at all worthwhile.")

On the average, your campers are indicating that they liked YCC quite a bit during the first week or so.

On the second measure, your campers tend to rate YCC as being very worthwhile for them.

INTERPERSONAL RELATIONS AND PARTICIPATION

In this section we would like to turn our attention to two measures which have been important in our past research in camps, and which are (taking all camps together) important predictors of the attitudes and the amount campers learn about the environment. These are the measures of "interpersonal relations with staff," and "participation in running the camp." Each measure is a composite we have created by adding together campers' answers to six questions concerning interpersonal relations, and six on participation. Now we'll talk about these overall scores; later we'll look at the responses of your campers to the individual questions.

For comparison we contrasted what your campers said with the results from last year's study. We will make this comparison for both the composite scores, and later, for the individual questions. We have used results from last year's camps only for those camps which were sponsored by your organization (e.g., Forest Service, BLM, BIA, etc.). These comparisons will give you a rough guide to areas in interpersonal relationships with campers, or the participation they see you giving them, where your camp may be high or low compared to comparable camps last year. We will also make suggestions for things you might do to improve camp conditions in these areas if the results suggest that some changes might help you and your campers.

Let's begin by looking at the distributions and means of the composite scores for interpersonal relations (labelled "INTRELAT" below) and participation ("PARTICIP"). One thing we will have to remember here, though, is that the data from last year were collected at the end of camps, not near the beginning. Any differences will have to be interpreted with care.

Interpersonal Relations:

The distribution of composite scores from your camp looks like this:

HISTOGRAM/FREQUENCIES

| MIDPOINT | COUNT FOR INTRELAT | (EACH X =1) |
|---|---|---|
| 8.8333 | 2 | +XX |
| 10.074 | 1 | +X |
| 11.315 | 0 | + |
| 12.556 | 3 | +XXX |
| 13.796 | 2 | +XX |
| 15.037 | 6 | +XXXXXX |
| 16.278 | 7 | +XXXXXXX |
| 17.519 | 8 | +XXXXXXXX |
| 18.759 | 1 | +X |
| 20.000 | 4 | +XXXX |
| MISSING | 2 | |
| TOTAL | 36 | ( 1.2407 = INTERVAL WIDTH) |

MEAN INTRELAT= 15.73
MEAN LAST YR.= 15.77

Higher scores represent campers who say they have closer interpersonal relationships with staff.

Compared to last year's measure, your camp is not significantly different from where camps sponsored by your organization were at the end of their sessions. This means there are no differences between where your campers say the camp is in terms of open interpersonal relations and what all campers in your organization said at the close of your organization's camps last year. It is difficult to figure out what to do as a result of a finding like this. We would suggest that you look at the results for the individual questions, and interpret them in the absolute, or as related to other items -- we will get into these questions a bit later.

We analyzed the composite interpersonal relations score according to sex, race, and school grade of your campers, and we found that:

-- males report closer interpersonal relations with staff than females

Now let's move on to a closer look at interpersonal relations by an analysis of the scores of your campers on each of the six questions which made up the composite score. Here are the means for your camp, and for comparable camps last year:

The questions and means for your camp and last year are:

Q 14 "How often is the behavior of the camp staff friendly and supportive?"
(No difference) Your Camp: 17.49 Last Yr: 16.74

Q 17 "To what extent do you consider individual members of the staff as friends?"
(No difference) Your Camp: 15.49 Last Yr: 16.45

Q19 "To what extent does the staff give positive rather than negative comments or criticisms in discussing the work of camp members?"
(No difference) Your Camp: 15.73 Last Yr: 14.55

Q24 "To what extent do you feel free to talk to members of the staff?"
(No difference) Your Camp: 16.00 Last Yr: 16.14

Q25 "To what extent does the staff treat you as an individual rather than just another member of the group?"
(No difference) Your Camp: 14.89 Last Yr: 15.27

"How much trust and confidence are shown by the camp staff in working with corps members?"
(No difference) Your Camp: 14.94 Last Yr: 15.51

Participation:

Now let's turn to the composite participation score. The distribution is listed out below:

HISTOGRAM/FREQUENCIES

```
MIDPOINT    COUNT FOR PARTICIP      (EACH X =1)

 7.0000         2 +XX
 8.4074         3 +XXX
 9.8148         4 +XXXX
 11.222         6 +XXXXXX
 12.630         7 +XXXXXXX
 14.037         4 +XXXX
 15.444         3 +XXX
 16.852         3 +XXX
 18.259         1 +X
 19.667         1 +X

 MISSING        2
 TOTAL         36   ( 1.4074     = INTERVAL WIDTH)

      MEAN PARTICIP=    12.42
      MEAN LAST YR.=    12.75
```

Higher scores represent those campers who say they are allowed by staff to have greater participation in running the camp.

In your camp now, the participation score is not significantly different from the end-of-camp scores for similar camps last year. It may be more useful to look at the individual participation questions (below).

We did the same analysis on the participation index as was done on the interpersonal relations measure to see if there were differences by race, sex, or grade of camper. Here we did not find any differences in the participation scores among the various groups of your campers.

Again, it is helpful to look at the actual participation questions from which the composite score above was built. We will follow the same format as was used earlier: this year's mean score for your campers, end-of-session means for similar camps last year, and the differences if any:

The questions and means are:

Q15a "How often does the staff ask for and use your ideas about program matters such as work assignments and topics studied?"
(Lower than last yr.) Your Camp: 8.88 Last Yr: 11.00

Q15b "How often does the staff ask for and use your ideas about non-program matters such as discipline and free time activities?"
(No difference) Your Camp: 12.56 Last Yr: 12.66

Q16 "To what extent is the staff willing to try new ways of doing things in order to improve the corps program?"
(No difference) Your Camp: 14.69 Last Yr: 14.13

Q18 "To what extent is the staff willing

to share information with corps members about the camp and its operation?"
(No difference) Your Camp: 14.59 Last Yr: 15.87

Q26 "How much are you involved in making decisions about running the camp and its programs?"
(No difference) Your Camp: 9.66 Last Yr: 10.45

Q27 "How often do the staff and corps members meet to discuss camp problems?"
(No difference) Your Camp: 13.85 Last Yr: 12.55

Suggestions Based on the Results:

The comparisons with last year's data we've talked about above may not give you a complete picture of your camp and things you might want to do to improve in either or both of the areas of interpersonal relations or camper participation. A more useful method for this is to compare the means on the questions with the maximum possible scores. For all of the interpersonal and participation questions and composite measures, the maximum possible score is 21. Questions with the lowest means are those with the most room for improvement in your camp.

Let's look at the lowest scoring questions in the two areas. For our purposes it is sufficient to consider those questions which have mean scores lower than the overall mean for questions in their set (the means of the two composite measures).

In the interpersonal relations question set, campers rate your staff as lower (relative to all questions taken together) on these particular questions:

-- being friends with the campers

-- treating campers as individuals

-- showing trust and confidence in campers

Among all of the participation questions, staff are rated lower by campers on these questions:

-- asking for and using campers' ideas on program planning

-- involving campers in making decisions related to the camp

We should note that even the questions not listed above may be worth working on if their mean is substantially below the maximum of 21. This you will have to decide, based on your knowledge of your camp.

PLANNING PARTICIPATION: IDEAL vs. ACTUAL

There is one remaining area of our analysis to be presented. Earlier we talked about results in the participation section which dealt with camper participation in planning. There were in addition four questions about specific types of planning which asked campers to compare the amount of participation they

would like to have with that they actually have had. The way the questions were asked allows us to compare "ideal" with the "actual" perceived participation statistically (pairwise t tests across questions). Let's look at the ideal-actual differences for the four questions. (The means below are based on a four-point scale for each question, running from 4="a good deal" of participation to 1="not at all." The higher the mean, then, the greater the actual or ideal participation campers say they have.)

1. Amount of participation in planning the camp work program:
   Ideal Mean= 3.26, Actual Mean= 1.70
   Less participation than campers want.

2. Amount of participation in planning the camp recreational program:
   Ideal Mean= 3.72, Actual Mean= 2.27
   Less participation than campers want.

3. Amount of participation in planning the environmental education program:
   Ideal Mean= 3.12, Actual Mean= 1.61
   Less participation than campers want.

4. Amount of participation in deciding on camp discipline:
   Ideal Mean= 3.38, Actual Mean= 2.18
   Less participation than campers want.

To help interpret the differences between ideal and actual perceived participation, we created a measure which adds up the differences between the two across all four questions. This is a measure of the "gap" between ideal and actual -- campers with higher scores are saying they are getting much less chance to participate than they would like to have. The next step was to see which campers (by sex, race, and school grade) saw the greatest gap. The results are as follows:

-- campers in higher school grades see a greater gap than campers from lower grades

USE OF THE RESULTS -- Some Suggestions for You

With the many miles between Ann Arbor, Michigan and your camp, it is not possible for us to suggest specific things for you to do based on the results. In any case, we don't have the intimate knowledge you do about your camp, and specific situations there which may contribute to the lower questions' scores. However, we would like to suggest a process you might use to develop your own implications from these results. There is a series of steps involved which we suggest you might use to combine the findings with work by your staff to see what changes you might like to make.

1. Preparation: Schedule a meeting of your camp staff; try to get off by yourselves for a good two-hour period. Take along some large sheets of paper, marking pens, and masking tape. See that all staff have had a chance to read this report before they go to the meeting.

In the Meeting:

2. Start by spending some time making sure that everyone understands how to read the report, and that the meaning of each analysis and result is clear to everyone.

3. Use some of your sheets of paper to plot the scores or means for the questions we've reported. This gives something to focus the discussion on, and makes it easier to see differences in scores.

4. The group should list on a sheet of paper several implications that they see coming out of the data. You might want to do this by question area, or combine all questions, as the group thinks best. For example, try to develop statements like: "we see that the mean on question A is low, this says that there is a problem which might be caused by X or Y."

5. Discuss which of these implication are more serious or more important than others.

6. Take one important implication and list all of the things which the group can do about it during the next week (as a start).

7. Determine who will try out what specific things, and when. You might want to assign specific responsibilities for actions.

8. Schedule a next meeting to talk about whether your actions were successful.

9. Set some new commitments for action, as needed.

10. Finally, if feasible, hold the same kind of meeting to plan additional actions with your campers.

We hope these findings and suggestions for their use are helpful to you this Summer, and that their use will result in a camp session which is more valuable for your campers, and more rewarding for you.

CHARTS FOR USE IN YOUR MEETING:

In our suggestions earlier we mentioned it would be a big help if you had the comparisons between this year's interpersonal relations means and last years' charted on a large piece of paper for use in focussing the discussion, and the same treatment for the participation means for your camp and last year.

We have provided some basic charts for your use, if you want to use them. You will need to do a little work on these to get them ready for the meeting, however. Below you will see two different sets of plottings for means. In each, the scores run down the left of the page, and each question in the set, in addition to the composite scores is plotted, once for the way it is now in your camp, and once for how it was at the end of similar camps last year. We suggest you connect all of the "NOW" (your camp's) scores by lines to produce a profile for your camp, and then connect the "LAST" scores for a profile of last year's camps. Refer back to where we talked about these scores in the text to see which differences are significant for the comparison of each question in your camp with its level last year, and mark the significant differences on the graph. (If your camp's mean is equal to last year's the column for that question will contain a "BOTH" at the level indicating both of the means.)

In the meeting, tape each graph up on the wall sideways, that is, with the scale on the bottom. You may also want to write the question names larger so your staff can see them. This will give you a quick means of centering the discussion on those differences which seem large, or those questions whose mean scores in your camp seem particularly low, in comparison to other questions (remember, the maximum score is 21 for all questions).

## APPENDIX B

Post-Season Reports to Camp Directors

Part of the 1973 research contract involved a data feedback experiment. As described in the text, a number of camps were selected to have their staff receive reports during the camp season. These reports described the reactions of campers to their YCC experience based on a questionnaire filled out at the beginning of the second week of camp.

While not part of the 1973 contract, we undertook an extension of the feedback principle and developed two small reports to send to camp directors after the camp season was over, based on questionnaires administered to campers at the end of the camp season. There were two reports: one on environmental education and the other on camper ratings of the quality of staff, the environmental education program, living conditions, work accomplished, and relationships between campers and staff.

In the package of questionnaire materials sent to camps during the regular session, we included an envelope. Anyone desiring the reports were asked to send back the envelope with his name and address on it. We sent the reports to those camp directors who did this. This was done in February and March of 1974. Since this effort was not part of the research contract, our attempt to assess its value to camp staff was only informal. Those who chose to give us their reactions, not surprisingly, were those who found it helpful. However, most of these also indicated that it would have been much more helpful had they received it earlier, perhaps in September or October. This would be possible technically if producing such reports were a major objective of the program. We recommend that the program sponsors assess the merits of this type of program evaluation for future years.

ISR

INSTITUTE FOR SOCIAL RESEARCH / THE UNIVERSITY OF MICHIGAN / ANN ARBOR, MICHIGAN 48106

CAMP LEVEL REPORT
1973 YCC ENVIRONMENTAL EDUCATION TESTING

Last summer we promised you a brief report on the results of the 1973 Environmental Education (EE) Tests. Our hope is that such information will be helpful to you in evaluating the design and operation of the 1973 program and perhaps also assist you in making modifications for the 1974 program.

The EE pretest and post-test were identical. Scores on these tests were calculated by adding up the total number of correct items for each camper. The EE scores shown on the next page are the average number correct for all the campers who took the test in your camp. There are three scores: average number correct for the pretest, average number correct for the post-test, and the difference between the pre and post averages. For each of these scores there is a percentile ranking. This indicates the percent of all the YCC camps that had a score lower than yours. For example, a percentile ranking of 60 indicates that 60 percent of the camps had lower scores than your camp and 39 percent had higher scores.

This year, in addition to the EE test, we had you administer a test of verbal skills to your campers. Using the results of this test we found two things which might temper your interpretation of the percentile rankings you received. Not surprisingly, performance of campers on the EE test is highly associated with campers' level of verbal skills; i.e., campers who are more skillful in taking tests or working with words do better on the EE test regardless of how much they know about the environment. Second, camps differ in the average verbal skills of their campers. We have taken these findings into account by providing you with two charts which you should use to revise -- if necessary -- the ranking of your pretest and post-test scores. Each of these charts has a dot for each of the YCC camps. The dot represents the intersection between a camp's score on the EE test and its score on the verbal skills test. (Intersection is explained on the chart.) To see how well your camp did on the two tests, taking into account your campers' verbal skills, simply note where the dot lies with respect to the two slanted lines in the chart. If the dot is above the uppermost line then your camp was among the top 25 camps (out of 100) -- taking into account your campers' verbal skills. Similarly, if the dot is below the lower of the slanted lines, then your camp was among the bottom 25 camps, taking into account your campers' verbal skills. The other 50 camps are located between these two lines.

Another way to use the two charts is to draw a line from your dot straight down to the line labelled "verbal skills;" then extend this line up to the top of the chart. Dots that lie on or very near this line are camps that are like yours in the test-taking skills of its campers. You should compare your performance with these camps.

(continued)

Camp Level Report -- page two

One other score needs to be discussed; this is the difference between your camp's post-test and pretest score -- i.e., the measure of how much your campers improved between the pretest and the post-test. The percentile ranking of this difference score does not need to be adjusted. We have found that amount of improvement over the summer is not related to camper verbal skill; so your percentile ranking reflects fairly well how effective your EE program was in teaching those things which we measured in our test.

If your percentile ranking (adjusted in the case of pre and post totals, unadjusted in the case of the difference or gain score) is lower than is desirable -- perhaps among the bottom 25 percent -- you might ask yourself what some of the reasons for this might be. You might think about such factors as quality and quantity of EE instruction, the receptiveness of your particular group of campers to EE training, the integration of EE into the work program, and the extent to which work leaders reinforced the EE program by discussing the environmental aspects of the work projects while the project was being carried out.

If you have any questions about this report or what your scores mean, please feel free to call me, Jere Johnston, at 313/ 764-2560.

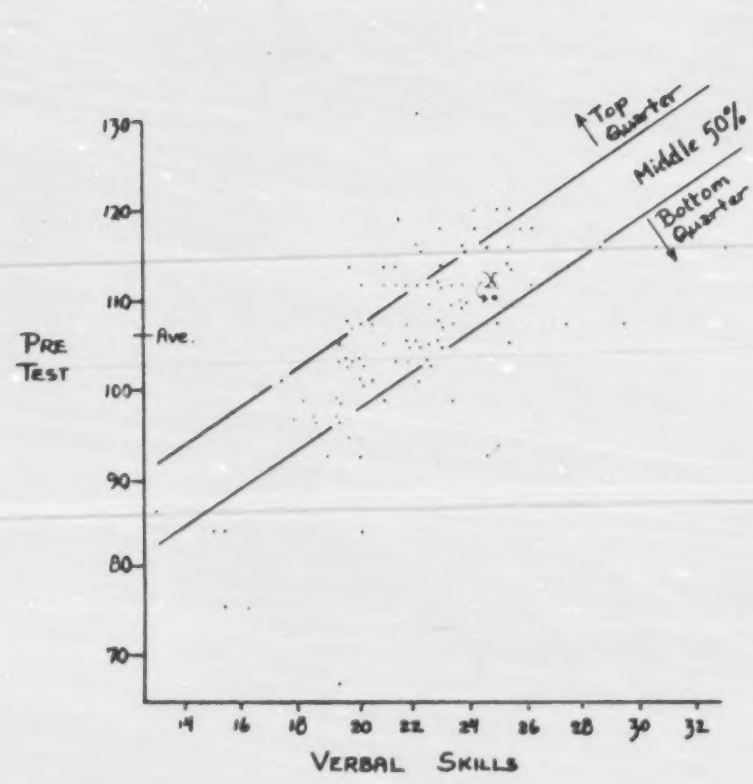
_____ Camp No. (Michigan code no.) Camp Name _____

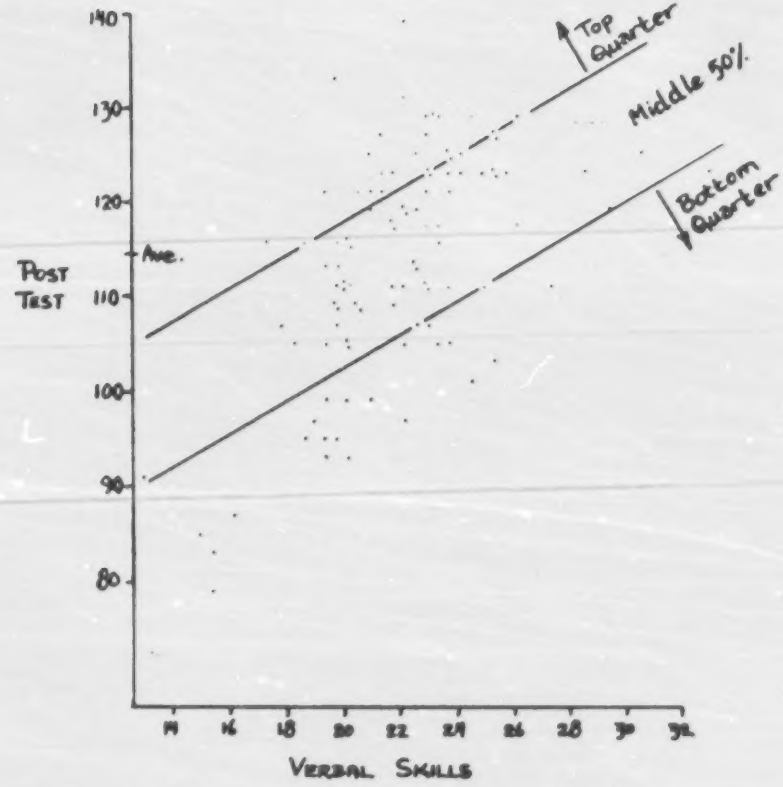
_____ No. of campers with pretest and post-test. ____4-week ____8-week

_____ Average verbal skill score (average for all camps = 22.0; range = 13.2-33.2)

| | Average Number Correct | Percentile | |
|---|---|---|---|
| Pretest (154 possible) | _____ | _____ | Compare with pretest chart on next page which adjusts for the verbal skills of your campers. |
| Post-test (154 possible) | _____ | _____ | Compare with post-test chart on next page which adjusts for the verbal skills of your campers. |
| Difference (post minus pre) | _____ | _____ | No adjustment is necessary here; this is a good measure of how effective your program was in teaching the kinds of things measured in the test. |

| NORMS | RANGE OF DIFF SCORES |
|---|---|
| Top 25 camps | +10.1 to +36.1 |
| Second 25 camps | + 6.8 to +10.0 |
| Third 25 camps | + 3.0 to + 6.4 |
| Bottom 25 camps | -13.5 to + 2.8 |






CHARTS FOR ADJUSTING ENVIRONMENTAL EDUCATION SCORES
TO REFLECT DIFFERENCES IN VERBAL SKILLS OF CAMPERS

Each dot represents one camp. It is the intersection between the camp's score on the EE test and its score on the verbal skills measure. For example, the dot labelled "X" in the left-hand chart represents a camp with a verbal skills score of 25 and a pretest score of 110.5

Slanted lines are the approximate cutoff points used to determine the adjusted quartile rankings of a camp's EE test score taking into account the average verbal skills of the campers.

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Follow these instructions to find out how your camp performed relative to other camps with campers of approximately the same test skills. From the dot for your camp, draw a line straight down to the line labelled "verbal skills;" this should be perpendicular to the verbal skills line. Extend the line up to the top of the chart. Camps that were like yours in the verbal skills of their campers are the dots on or very close to the line you drew. If most of these other dots are above yours, you performed relatively poorly; if most of these dots are below yours, then you performed relatively well. Camp "X" has about 6 camps above it and 3 below it; all 10 are similar in verbal skills.

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INSTITUTE FOR SOCIAL RESEARCH
UNIVERSITY OF MICHIGAN

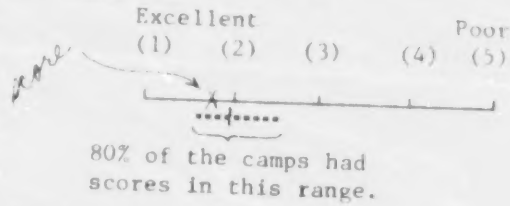
**CAMP LEVEL REPORT -- 1973 CAMPER RATINGS** March, 1974

One month ago we sent you a report which described the performance of your campers on the Environmental Education Test. In this report, we describe some additional information provided by your campers: their ratings of the program. We feel that this information is a valuable supplement to the EE scores in helping you assess the strengths and weaknesses of your program.

At the end of the 1973 season, campers were asked to rate a number of dimensions of the YCC program. These included the staff, fellow corps members, work accomplishment, the EE program, living conditions, perceived value of the experience, satisfaction, etc. We have selected the most interesting items and provided you with a do-it-yourself kit to see how your campers responded. There are two parts to the kit: (1) the average rating for each item based on all the campers who filled out the end-of-camp questionnaire; (2) a copy of the questionnaire with blank scales. Mark the scores for your camp on the scales.

EXAMPLE: If the data indicated that the average score for your camp on question A. was 1.75, you would mark the scale as follows:

A. How would you rate the regular staff as work leaders?




The items rated by the campers are related to the objectives of the national program. Important outcomes for the youth include learning about the environment, accomplishing needed conservation work, learning how to better work with and relate with peers and superiors, learning how to get along with peers of different backgrounds, and being gainfully employed for the summer. Achieving these outcomes depends, among other things, on having a good staff, a good EE program, adequate living conditions, etc. We asked the campers to rate both kinds of things: some of the desired outcomes and also some of the dimensions such as quality of staff, etc., that frequently relate to achieving these outcomes.

As you look at the ratings, we feel that the most important reference point should be your own standards and expectations. To provide some perspective, however, we have shown underneath each scale the range of scores for all camps in the 1973 program. (Actually we eliminated from the range the 10 lowest and the 10 highest scoring camps on each item to give a more accurate picture of the real range of scores.) We encourage you to use these data in a problem-solving way. Talk with a number of people associated with your program last summer and ask why your campers responded as they did. For those of you who will have camps this coming summer this exercise should help identify areas which should remain unchanged and ones which you should try to improve.

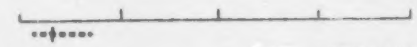
If you have any questions about this report or what it means, please feel free to call me, Jere Johnston, at (313) 764-2560.

# CAMPER RATINGS

## A. SOME IMPORTANT OUTCOMES

4. To begin with, how do you feel about your Youth Conservation Corps experience this Summer? (Actual scale: 1) I really like it; 2) I liked it; 3) I can't say I clearly liked or disliked it; 4) I disliked it; 5) I really disliked it.)

(1) (2) (3) (4) (5)



LIKE DISLIKE

5. How worthwhile to you was your Youth Conservation Corps experience this summer? (Actual scale: 1) Very worthwhile; 2)Somewhat worthwhile; 3) Not very worthwhile; 4) Not at all worthwhile.)

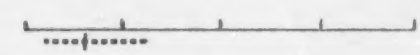
(1) (2) (3) (4)

WORTH NOT WORTH

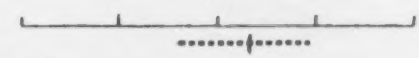
EXCELLENT VERY GOOD GOOD FAIR POOR

(1) (2) (3) (4) (5)

W. Compared to other summer jobs for people your age, how would you rate the YCC job you had this summer?



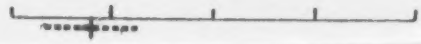
X. How would you rate the amount of money you earned this summer compared to what you could have earned at another summer job at home?



**How would you rate the work accomplished by corps members at your camp:**

K. as to amount?

L. as to quality?



M. as to its benefit to the environment?

N. as to its benefit to the public?

Below are some of the things you might have learned this summer. For each item indicate on your answer sheet how much you learned about it this summer.

| | NOTHING AT ALL (1) | A LITTLE (2) | PRETTY MUCH (3) | VERY MUCH (4) |
|---|---|---|---|---|
| Z. General principles of ecology and conservation. | | | | |
| AA. How the things I do affect the environment. | | | | |
| BB. How I can help people in my community become active in working on environmental problems. | | | | |
| CC. How to use tools. | | | | |
| DD. How to get along better with people my own age. | | | | |
| EE. How to get along better with people of different racial or ethnic groups. [*NOTE: Did your camp have more than one racial or ethnic group?*] | | | | |
| FF. How to work on projects that require teamwork. | | | | |

Will any of the things you learned this summer be of value to you back home?

| | NOT AT ALL VALUABLE (1) | NOT VERY VALUABLE (2) | SOMEWHAT VALUABLE (3) | VERY VALUABLE (4) |
|---|---|---|---|---|
| GG. General principles of ecology and conservation. | | | | |
| HH. How the things I do affect the environment. | | | | |
| II. How I can help people in my community become active in working on environmental problems. | | | | |
| JJ. How to use tools. | | | | |
| KK. How to get along better with people my own age. | | | | |
| LL. How to get along better with people of different racial or ethnic groups. [*NOTE: Did your camp have more than one racial or ethnic group?*] | | | | |
| MM. How to work on projects that require teamwork. | | | | |
| NN. In general, do you think the things you learned this summer will be valuable to you back home? | | | | |

## B. A FEW FACTORS THAT RELATE TO OUTCOMES

Look here for clues to explain some of the ratings on the previous pages.

Here are some questions about how you would rate specific parts of the Youth Conservation Corps.

| | Excellent (1) | Very Good (2) | Good (3) | Fair (4) | Poor (5) |
|---|---|---|---|---|---|
| How would you rate the Regular Staff: | | | | | |
| A. as work leaders? | | | | | |
| B. as to their commitment to the overall objectives of the YCC program? | | | | | |
| C. as to their concern about the environment? | | | | | |
| D. as to their knowledge of the environment? | | | | | |
| E. as to their ability to help you learn about the environment? | | | | | |
| How would you rate your fellow corps members: | | | | | |
| F. as co-workers? | | | | | |
| G. as to their commitment to the overall objectives of the YCC program? | | | | | |
| H. as to their concern about the environment? | | | | | |
| I. as to their knowledge of the environment? | | | | | |
| J. as to their ability to help you learn about the environment? | | | | | |

| | Excellent (1) | Very Good (2) | Good (3) | Fair (4) | Poor (5) |
|---|---|---|---|---|---|
| How would you rate the environmental education you received: | | | | | |
| O. as part of the work program? | | | | | |
| P. as part of lectures, films, or classes held in camp? | | | | | |
| Q. as part of recreation or other parts of the program (informal discussion, ecological games, reading in the library)? | | | | | |
| R. in terms of its application to your post-camp life? | | | | | |
| S. How would you rate the coordination between the work and the environmental education program -- how well did one tie into the other? | | | | | |
| T. How would you rate your camp as a community -- a place where interests are shared and people work well and get along well together? | | | | | |

ANSWER THE NEXT 2 QUESTIONS ONLY IF YOU WERE IN A RESIDENTIAL CAMP

| | | | | | |
|---|---|---|---|---|---|
| U. How would you rate the living accomodations? | | | | | |
| V. How would you rate the recreational facilities? | | | | | |

There are two measures which have been important in our past research on camps and which frequently are important predictors of the attitudes and environmental learning of campers. One of these is a measure of "interpersonal relations between campers and staff" (called RELATION on your report) and the other is "participation in running camp" (PARTICIP). Each measure is a composite we have created by averaging together campers' answers to several individual items.

RELATION -- Interpersonal Relationships
This measure is a composite of six items:

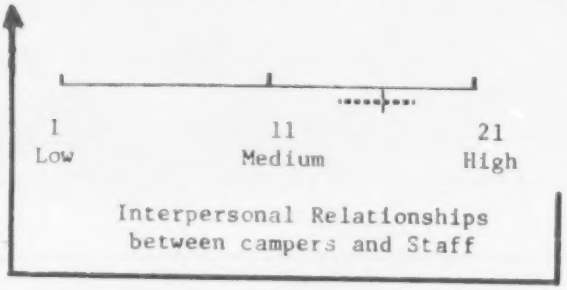
14. How often is the behavior of the camp staff friendly and supportive?

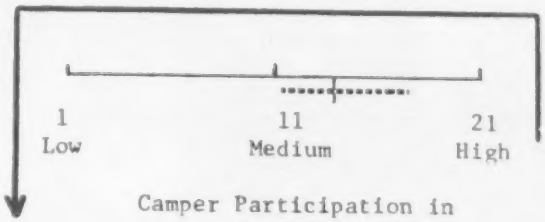
17. To what extent do you consider individual members of the staff as friends?

19. To what extent does the staff give positive rather than negative comments or criticisms in discussing the work of camp members?

24. To what extent do you feel free to talk to members of the staff?

25. To what extent does the staff treat you as an individual rather than just another member of the group?




PARTICIP -- Camper Participation in Camp Decison-Making
This measure is a composite of six items:

15a. How often does the staff ask for and use your ideas about program matters such as work assignments and topics studied?

15b. How often does the staff ask cor and use your ideas about non-program matters such as discipline and free time activities?

16. To what extent is the staff willing to try new ways of doing things in order to improve the corps program?

18. To what extent is the staff willing to share information with corps members about the camp and its operation?

26. How much are you involved in making decisions about running the camp and its programs?

27. How often do the staff and corps members meet to discuss camp problems?

APPENDIX C

Test of Environmental Knowledge

Results of an item analysis of the environmental education test have been reported to the sponsors to help in the future refinement of the test.

INSTITUTE FOR SOCIAL RESEARCH
THE UNIVE..SITY OF MICHIGAN
ANN ARBOR, MICHIGAN 48106



O.M.B. No.: 40-S73029
Approval Expires Oct. 31, 1973

Booklet Number: 7841

# 1973 YOUTH CONSERVATION CORPS

## ENVIRONMENTAL EDUCATION TEST

Again this year the University of Michigan is evaluating some of the things young people learn in the YCC program. Our studies in 1971 and 1972 have helped improve the program; we hope this year's will too. To do this, we need your help in completing this questionnaire and a similar one during the last week of camp. Thanks for your help.

MULTIPLE CHOICE QUESTIONS: Most of the questions in this test have a number of possible answers for you to choose from. In every case, you should choose only the ONE best answer. These suggestions may be helpful:

--If you are sure of the correct answer, mark it on the answer sheet.
--If you are pretty sure, mark it on the sheet.
--If you don't know the answer at all, leave it blank.

DIRECTIONS: All of the answers for this test should be placed on the separate answer sheet provided.

--Use only a soft pencil (No. 2 is ideal).
--Make heavy black marks that fill the circles.
--Erase cleanly any answer you wish to change.
--Do not make any stray marks on the answer sheets.

IDENTIFICATION: We do not need to identify any camper by name. But the computer does need to be able to match all of the different questionnaires which you will fill out this summer. To do this, your answer sheets will be given a code number based on the information you give us in the upper corner of side one of the answer sheet.

--Fill in the circles that match the camp number. (This number has been stamped in the upper left-hand corner of side one of the answer sheet.)

--Write in your birthday and then mark the circles that match your birthday.

--Mark the number of brothers you have (do not include yourself when you count).

--Mark the number of sisters you have (do not include yourself when you count).

## PART I

## RESOURCE MANAGEMENT

Match the following by choosing the best available answer. Use each answer only once.

| TERM | DEFINITION |
|---|---|
| 1. Renewable resource | A. Several uses of a given area |
| 2. Multiple use | B. Man's past influence is minimal |
| 3. Wilderness | C. Total extinction of a species |
| 4. Heritage resource | D. The supply can be replaced |
| 5. Non-renewable resource | E. Total supply decreases with use and cannot be replaced |
| | F. Resource of historical-cultural value |

6. Some resources are in danger of being "overused" and thus will become unavailable to future generations. Which one of the following is in the most danger of being overused?

   1. Coal  2. Solar energy  3. Water

7. Which one of the following is in the most danger of being overharvested?

   1. Deer  2. Grizzly bear  3. Black bear

8. More natural resources are used by the average citizen in a wealthy country than in a poor country.

   True  False

3

Match the following examples of different types of resource use with the definition given that type of use or management on the right.

| EXAMPLE | DEFINITION |
|---|---|
| 9. Protection of whooping cranes | A. Exploitation: A type of use geared to short-term gain, usually of an economic nature |
| 10. Improving the technology of oil refining to get more useable oil per barrel of raw (crude) oil | B. Conservation: A type of use in which resources can be consumed but attention is given to getting the best use for everyone concerned including future users. |
| 11. Maintaining Grand Canyon in its natural state | C. Preservation: A type of use or management in which resources are preserved by limiting uses to those which do not have adverse effects. |
| 12. Restoration of cliff dwellings in Mesa Verde | |
| 13. Depletion allowances (tax benefits to oil companies) to encourage drilling | |
| 14. Overgrazing range land | |
| 15. Recycling organic food waste | |
| 16. Harvesting timber with no attention given to regeneration | |
| 17. Endangering a species through killing to obtain fur for coats | |

Resource Consumption: One problem of environmental quality is the level at which we consume resources and produce wastes. On your answer sheet indicate for each of the following whether it would tend to increase consumption (I) or decrease consumption (D).

18. Declining levels of population growth

I D

19. Purchasing things that save us time and effort and are convenient

I D

20. Repairing a two-year old car rather than trading it in on a new one

I D

21. Lower horsepower engines being sold for automobiles

I D

22. Recognizing that future generations of living things have a right to the earth's resources, too.

I D

23. Using advertising to create demands for new products

I D

24. Viewing the earth as a relatively closed system with limited resources

I D

25. Rationing scarce resources

I D

26. Which one is NOT an example of "sustained yield management"?

1. Harvesting trees on a rotation basis
2. Recharging ground water supply
3. Mining peat from a swampy area
4. Matching hunting quotas to wildlife population

27. Which one is NOT an example of "sustained yield management"?

    1. Selecting only mature trees to harvest
    2. Establishing size limits on fish one is permitted to keep
    3. Deep mining for coal
    4. Maintaining nesting areas on wildlife preserves for migratory birds

28. A herbicide refers to:

    1. A chemical used to kill plants
    2. An animal that uses other animals as a source of food
    3. A poisonous plant
    4. A spray for controlling insects

29. Fire is sometimes used as a tool in forest management.

    True False

30. A "prescribed or controlled burn" refers to a practice of forest management.

    True False

31. "Clearcutting" (i.e., cutting all of the trees in a timber sale area) is a practice in forestry which should never be used.

    True False

32. It is possible to establish natural areas and wildlife sanctuaries within large cities.

    True False

33. Trees can be managed as if they were a crop to be harvested on a rotating basis.

    True False

34. The amount of dissolved oxygen in a stream or river has no effect on the types of fish around there.

    True False

35. Biological control refers to:

1. Control of pests with chemicals
2. Using a pest's natural enemies to limit its population
3. Creation of organic fertilizer by composting and biological action

36. Composting refers to:

1. Man's attempt to help recycle minerals and nutrients
2. Separation of garbage into cans, bottles, paper and food
3. Using a sink garbage grinder for only certain types of food wastes
4. Putting fence posts in the ground around a cattle compound

37. Which one of the following is not used to control soil erosion?

1. Contour farming
2. Biological control
3. Terracing
4. Strip cropping

## PART II

## MAN'S IMPACT

38. Which of the following actions will not reduce the diversity or number of organisms in a natural area:

1. Picking rare flowers or plants
2. Planting only one type of tree along the streets in a city
3. "Poaching" or illegally killing game animals
4. Photographing animals along a nature trail

39. There would be no water pollution if man did not exist.

True False

40. There would be no floods if man did not exist.

True False

41. There would be no soil erosion if man did not exist.

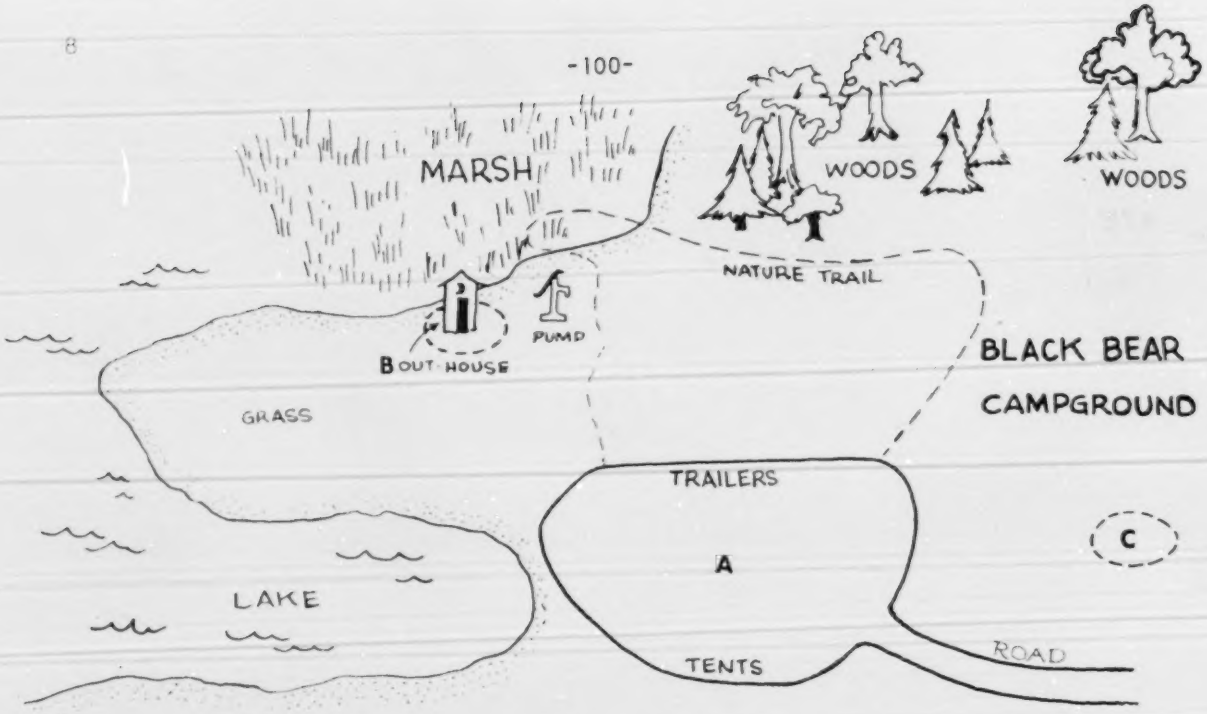
True False

42-46. Match the following with the one best example:

| TYPE OF HARMFUL IMPACT | EXAMPLE |
|---|---|
| 42. Littering | A. Carving initials into walls of public bathrooms |
| 43. Creating noise pollution | B. Carelessly discarding cans or bottles |
| 44. Creating visual blight or marring appearance | C. Riding loud motorcycle through residential area of a city |
| 45. Causing excessive run-off | D. Covering large areas of land with concrete and asphalt |
| 46. Creating thermal pollution | E. Putting "cooling water" from a nuclear power plant directly into a small stream |

47-51. Match the following with the one best example:

| TYPE OF HARMFUL IMPACT | EXAMPLE |
|---|---|
| 47. Overgrazing | A. Starting forest fires |
| 48. Burning | B. Driving vehicles on very wet dirt roads |
| 49. Overcutting | C. Not leaving young trees or not replanting |
| 50. Rutting | D. Too many sheep on a given area |
| 51. Trampling | E. Walking on low-growing plants |
| | F. Not practicing contour farming |




The park ranger has decided that the above campground has been overused and should not be used at all for the next four years. After four years of "rest" what would you expect to find for each of the following?

52. The variety of wildlife?

1. Greater than Before
2. The same as Before
3. Less than Before

53. The general health and condition of the plant life?

1. Better than Before
2. The same as Before
3. Worse than Before

54. The aspect?

1. Better than Before
2. The same as Before
3. Worse than Before

55. Compaction in area A

1. Greater than Before
2. The same as Before
3. Less than Before

56. Before re-opening the campground, new out-houses will be put in. Is it best to retain them in Area B or move them to Area C.

1. Leave them in Area B
2. Move them to Area C
3. It makes no difference

57-61. URBAN PROBLEMS: Match the following lists:

| | |
|---|---|
| 57. Sign ordinance | A. High voltage lines between cities |
| 58. Transmission lines | B. Low voltage lines between cities |
| 59. Mass transit | C. Unplanned development around a city |
| 60. Urban sprawl | D. Transportation of large numbers of people, such as by commuter train |
| 61. Distribution lines | E. For control of visual pollution |
| | F. Intercity railroad lines |

62-67. URBAN PROBLEMS: Match the following lists:

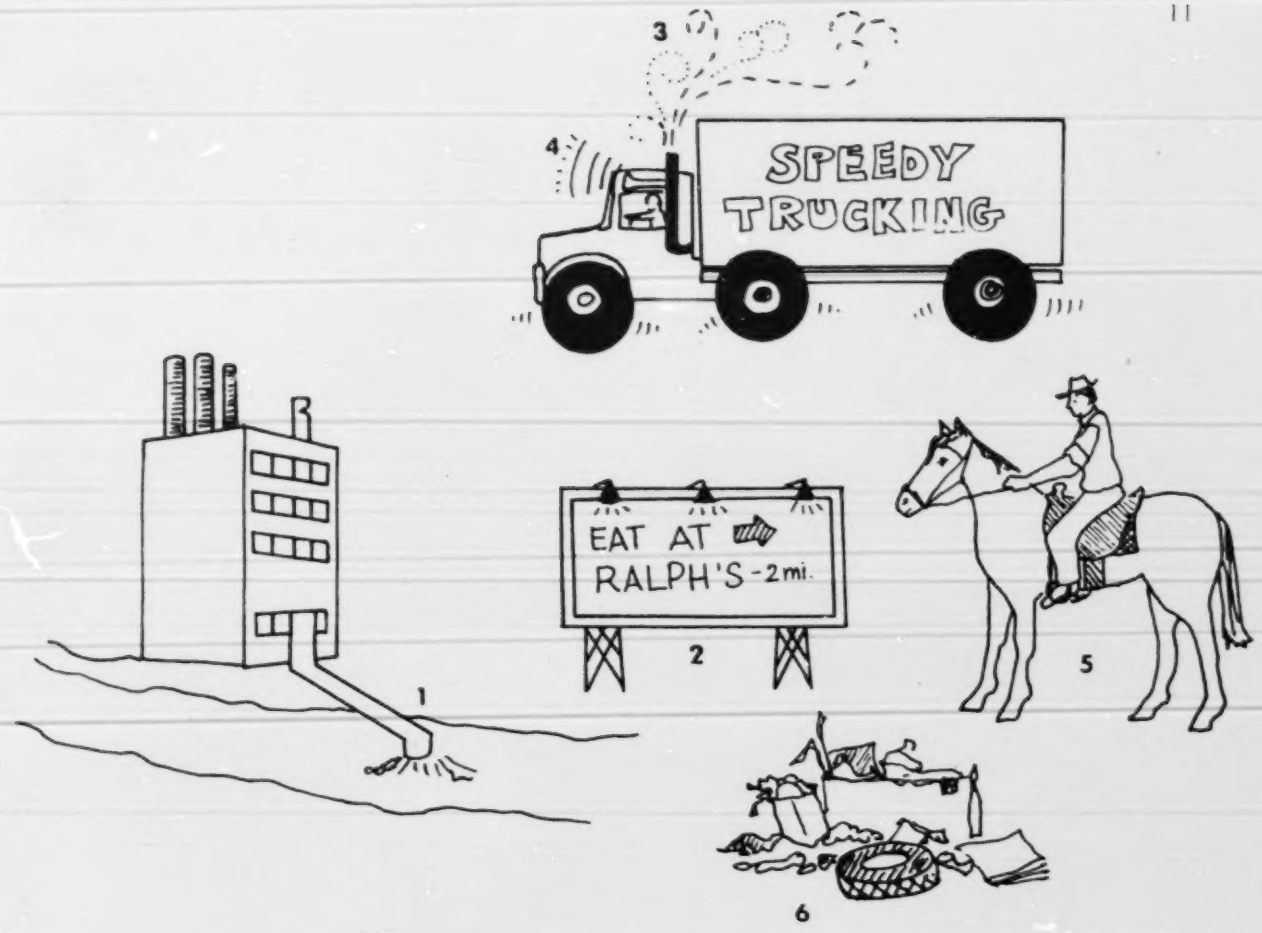
| | |
|---|---|
| 62. Density | A. Number of people per unit area |
| 63. Secondary sewage treatment | B. Run-off from roofs, parking lots and lawns |
| 64. Primary sewage treatment | C. Used to dispose of solid waste |
| 65. Sanitary land fill | D. Decomposition of waste by biological action |
| 66. Storm sewage | E. Physical screening or settling |
| 67. Cluster development | F. Houses grouped together to preserve open space |
| | G. Allocation of certain areas to certain types of uses |

68-73. POLLUTION: Choose the best definition:

| | |
|---|---|
| 68. Thermal pollution | A. Aging of a lake |
| 69. Solid waste | B. Hot effluent or wastes |
| 70. Amount of dissolved oxygen | C. Discarded papers and other containers |
| 71. Decibel | D. Can be broken down biologically and recycled |
| 72. Eutrophication | E. Measure of noise pollution |
| 73. Biodegradable | F. Measure of water quality |
| | G. Reason some squirrel eggs do not hatch |

74-78. POLLUTION: Choose the best definition:

| | |
|---|---|
| 74. Temperature inversion | A. Layer of warm air above cold air |
| 75. Chlorinated hydrocarbon | B. Long lasting part of some pesticides and herbicides |
| 76. Ground water pollution | C. The increased concentration of animals in certain attractive land areas. |
| 77. Coliform bacteria | D. Could indicate presence of germs that cause human illness |
| 78. Biological accumulation | E. Pollution of ground water supply |
| | F. Increased concentration of chemical substance, such as DDT stored in organisms as you move up through a food chain |




79-83. Types of Pollution. Match the numbers in the drawing with the appropriate label below.

79. Air pollution

80. Noise pollution

81. Sewage effluent

82. Visual pollution

83. Solid waste

## PART III

## ECOLOGICAL RESPONSIBILITY

Most of our actions have some impact on the environment, but it is difficult to determine whether the impact is so great that we should avoid the action.

To help make a decision, we need to ask questions related to a number of environmental concerns. Below are some of these concerns and some sample questions based on the concern. For each question pick the one best answer and mark it on your answer sheet.

*Environmental Issue: To what extent does the activity or product consume natural resources?*

84. You are at a lake and looking for summer fun; which activity would consume the most natural resources?

    1. Swimming  2. Sailing  3. Water Skiing

85. You travel to work every day; which of the following means of transportation would consume the most natural resources?

    1. Travel alone in a compact car
    2. Travel alone in a large car
    3. Travel with others in a compact car

86. A group of teenagers are looking for some fun one evening; which activity would consume the most natural resources?

    1. Drive around town in a car
    2. Sit around a table and talk
    3. Play a game of basketball

*Environmental Issue: Are the resources that are being used renewable or non-renewable?*

87. Which type of camping equipment requires the smallest amount of non-renewable resources to manufacture?

    1. Mobile motor home
    2. Camper trailer
    3. Canvas tent

88. Which method of heating a house uses the smallest amount of a non-renewable resource?

1. Coal 2. Oil 3. Solar (sun)

*Environmental Issue: Is the product biodegradable so it will decompose after we dispose of it?*

89. Which type of napkin is least biodegradable?

1. Paper 2. Cotton 3. Synthetic fiber

90. Which type of food packaging is most biodegradable? (Assume the same size package)

1. Foil wrapper 2. Plastic bag 3. Paper bag

*Environmental Issue: Is the consumption based on what you need or what you want?*

Many natural resources are consumed to make products that we all need: food, clothing, shelter. However, many products are ones that we do not need to survive, but we want them anyway. For example, man needs shelter from the weather, but some people buy houses that are much larger than they need and thus fill their wants more than their needs.

91. Which one of the following food choices would be based most on needs instead of wants.

1. Sugar-coated cereal
2. Hamburger
3. Cola drink

*Environmental Issue: Does the activity show a concern for the future as well as the present?*

92. A small town is beginning to expand rapidly. The city council is wondering what it should do. Which one of the following actions would show the least concern for the future?

1. Let everybody build houses where and how they want
2. Establish building codes which specify the plumbing, electrical, and construction materials to be used
3. Set aside certain areas of land in the town which can be used only for parks and natural areas

*Environmental Issue: Is concern shown for forms of life other than man?*

93. Which one of the following purchases shows the least concern for forms of life other than man?

1. Wool coat 2. Genuine seal coat 3. Imitation seal coat

94. Which one of the following shows the most concern for forms of life other than man?

1. Establishing a wilderness area
2. Draining swamps to build houses for people
3. Building homes in clusters, leaving open space all around the cluster of homes

## PART IV

## GENERAL ECOLOGY

95. Ecology is usually defined as:

1. The study of a plant or of an animal
2. The study of relationships between plants and animals and their environments
3. The identification of plants and animals
4. A branch of physics which deals with plants and animals

96. Succession refers to:

1. The aging process of a plant community in which one group of species is replaced by another over time
2. The natural aging process of a particular plant community
3. The fact that successful species will survive
4. The movement of one fish after another up a river

15

97. The maximum number of organisms which an area can support indefinitely and in good health is called the:

1. Carrying capacity
2. Critical zone
3. Saturation level
4. Ecological apex

98. A food chain is:

1. A term used to describe the eating habits of animals
2. A series of organisms through which energy flows
3. An animal's digestive tract
4. An organism which blocks the flow of food in some animals

99. In ecology the term limiting factor is:

1. An anti-pollution device
2. Something preventing the maximum growth or development of a population of plants or animals
3. Any extinct species
4. The maximum number of campers permitted to use a campground

100. Which of the following best fits the definition "one species directly attacks another but is dependent on it."

1. Competition
2. Succession
3. Dominance
4. Parasitism or predation

101. A Food Web is:

1. A related group of food chains
2. A special part of a spider's web
3. The transfer of food energy from one plant to another in the nitrogen cycle
4. The part of a duck's foot that collects food for duck foot parasites to feed on

102. Dominance in ecology refers to:

1. Superior strength and/or vigor of certain plants or animals
2. Why plants grow toward the sun
3. The three basic domains of plant, animal, and mineral
4. A resting time in the life cycle of certain plants and animals

103. Biomass is the total weight of the living organisms within a specified area.

True False

104. There is little competition in a stable ecosystem.

True False

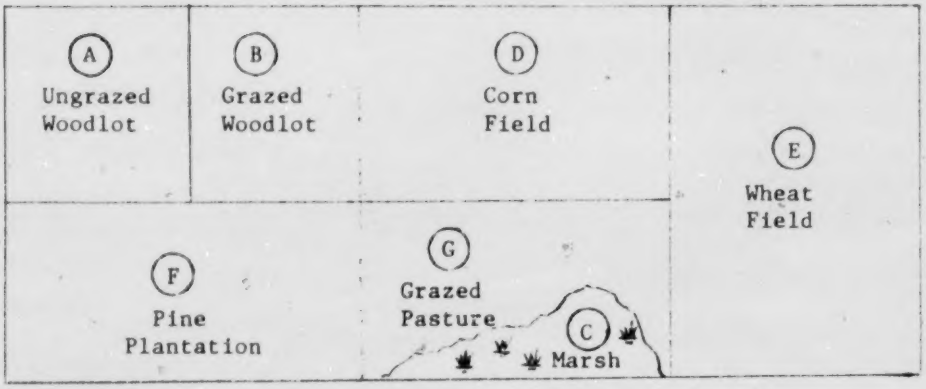



FIGURE 2

FARMER JONES' PROPERTY

The next ten questions all refer to Figure 2. Choose the one best answer and mark it on your answer sheet.

105. In which location would you expect to find the greatest variety of wildlife?

1. In the middle of area A
2. Where areas A and F come together
3. In the middle of area F

106. Assuming similar slopes and soil type, which one area would be most subject to erosion?

D E F C

107. Which one area would probably have the greatest number of different types of plants?

A D F E

108. Which area represents a monoculture?

A D B C

109. In which area are insects likely to do the most damage?

A F

110. In which area is succession proceeding at the fastest rate?

G C E D

111. Would the soil have more air and water space in A or B?

A B

112. If you ceased to cultivate the cornfield (D), what form of vegetation would you expect to invade next?

1. Pioneer Trees
2. Climax Trees
3. Mid-tolerant Trees
4. Reeds and Rushes

113. What is most likely to have been in area C before it became a marsh?

1. An open pond
2. A forest
3. Shrubs
4. Bare rock

114. In early spring where would you expect to find the least biomass?

A F C D

115-118. Illustrated Food Chain. Included in these five drawings are four links in the food chain. Match the picture with the name given below; put your answer on the answer sheet.

115 . Producer

116 . Primary Consumer

117 . Secondary Consumer

118 . Reducer

# ATMOSPHERE



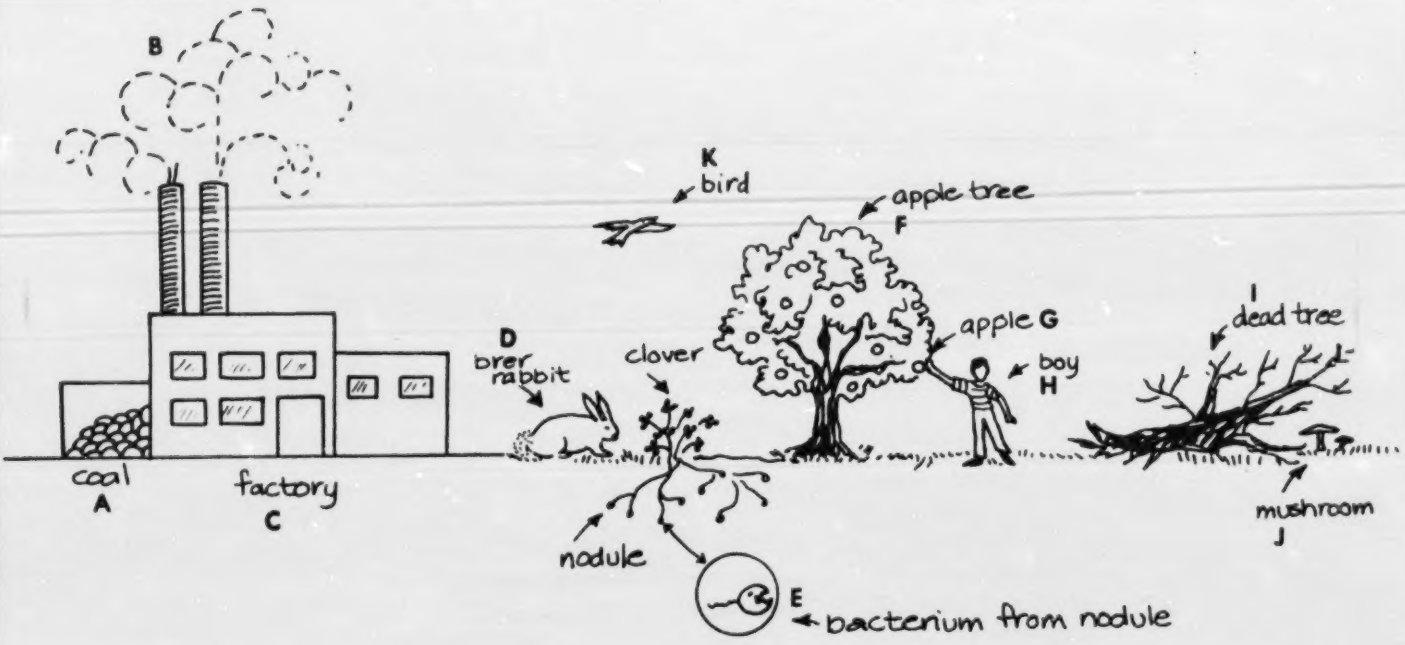



FIGURE 4

119-123. Oxygen, nitrogen, and carbon cycles. The next five questions refer to Figure 4; choose the one best answer and mark it on the answer sheet.

119. Which of the following represents a part of the nitrogen cycle?

B H E K

120. Which of the following produces more oxygen than carbon dioxide?

C D F K

121. Which of the following represents a way for carbon to flow from plants to animals?

K G I A

122. Which of the following produces carbon dioxide as a product of combustion?

C H D F

123. Which of the following produces carbon dioxide as a product of respiration?

C H I G

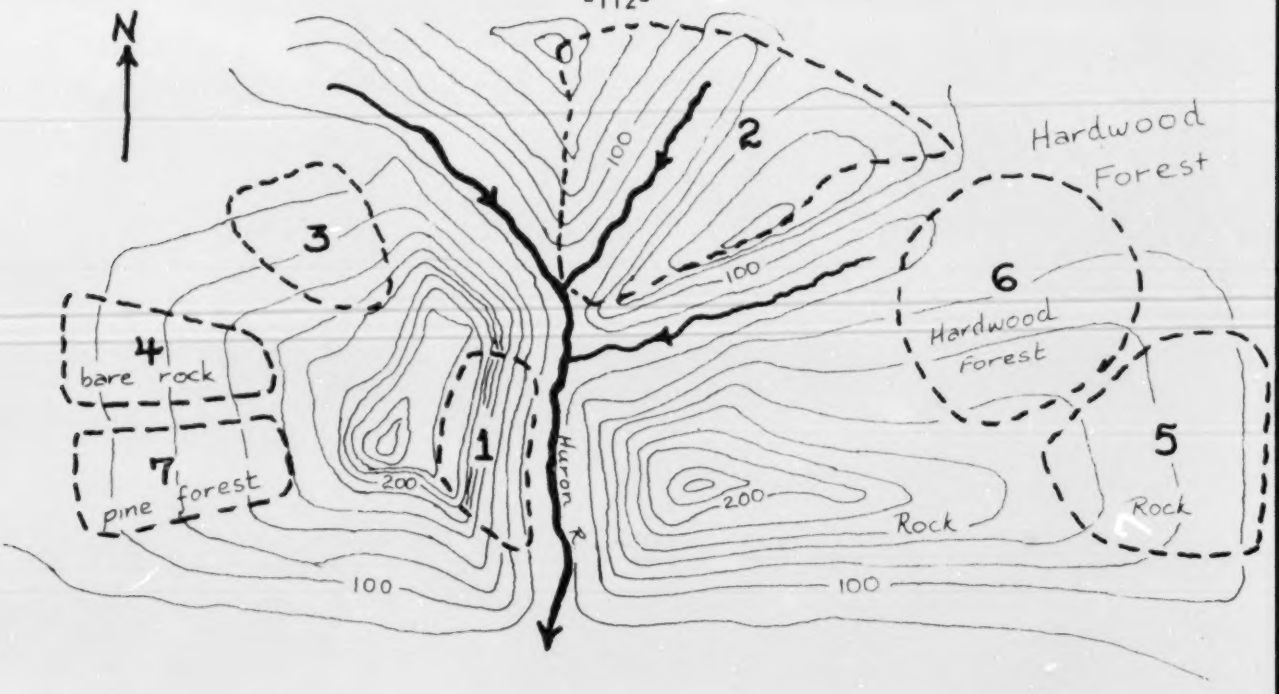



FIGURE 5

The next five questions refer to Figure 5 above:

124. Which area best fits the definition of a watershed?

2 3 4 7

125. Would you expect to find greater runoff in area 5 or area 6?

Greater in 5 Greater in 6

126. Which slope has an Eastern aspect?

6 4 3 1

127. Which slope is steeper, 1 or 5

1 is steeper 5 is steeper

128. There will be less runoff in area 7 than in area 4. Which one of the following is NOT a reason for this?

1. The humus acts as a sponge
2. Difference in slope
3. Infiltration into the soil
4. Interception by trees

129-134. The figure below illustrates with arrows the various stages in the water cycle. These stages are named in the list below. Match the arrow with its name. Make your marks on answer sheet.

129. Evaporation

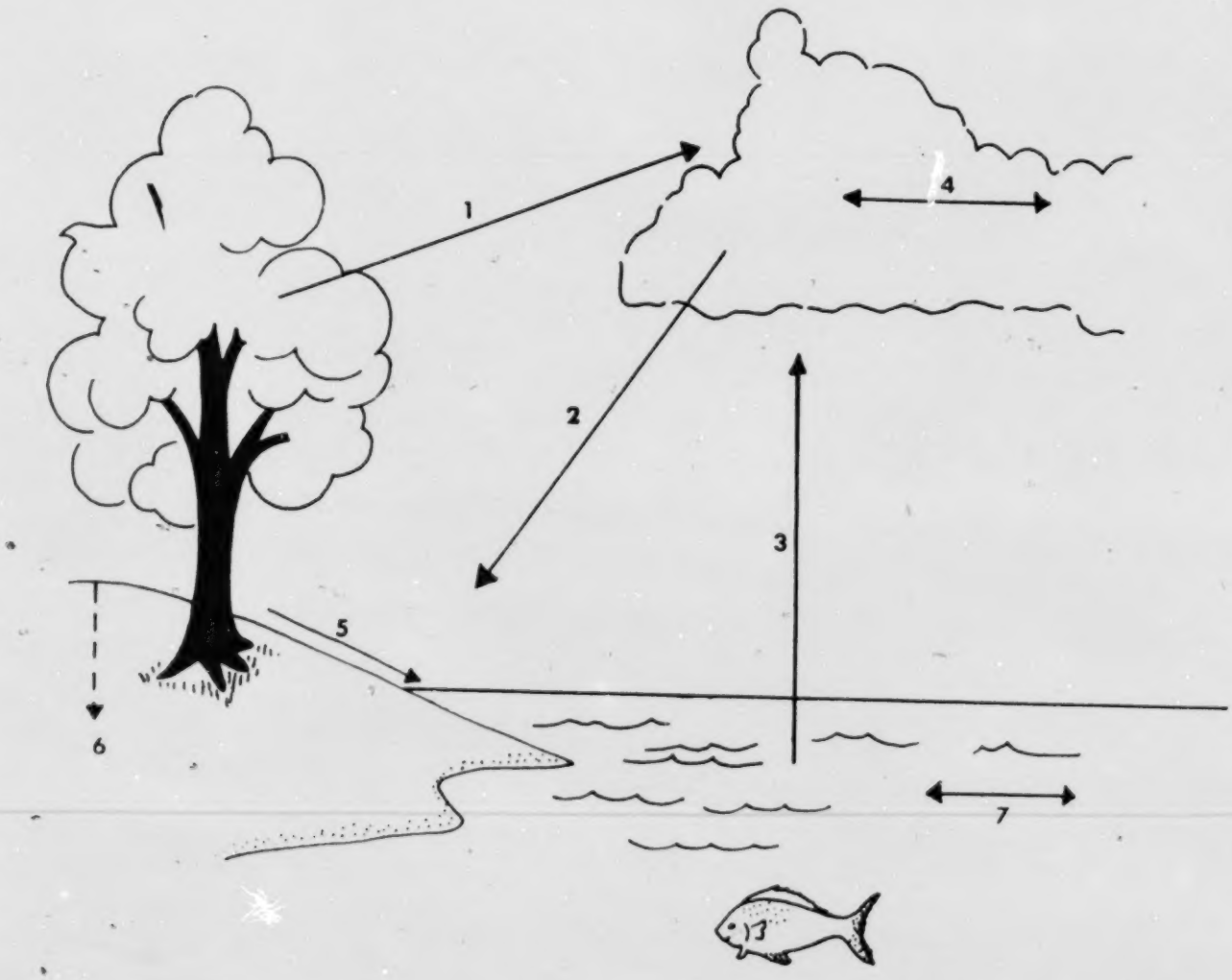
130. Transpiration

131. Precipitation

132. Condensation

133. Run-off

134. Recharge



135. Which one of the following energy resources is the major source of energy in the United States?

1. Fossil Fuel
2. Thermal Power
3. Hydroelectric Power
4. Nuclear Power

136. Which of the following energy sources is in most danger of being depleted or used up?

1. Fossil Fuel
2. Thermal Power
3. Hydroelectric Power
4. Nuclear Power

137. Our major energy sources in the United States come from non-renewable resources.

True False

138. When a country increases its use of energy, what tends to happen to pollution in that country?

1. The types of pollution change, but the total amount remains the same
2. The total amount of pollution increases
3. The total amount of pollution decreases

139. Generally high horsepower cars use more energy per mile than lower horsepower cars:

True False

140. A "brown out" refers to:

1. Heavy soot from pollution
2. The results of having too little power available to meet the demand
3. A war time safety measure
4. The drying up of lawns when there is too little water

141. Which one of the following has caused the greatest increase in energy consumption in the United States during the past thirty years?

1. Total increase in population or number of people
2. Increases in the amount of energy each person uses

Plants, humans and other animals have many things in common. Accordingly there are a number of ecological concepts for which we can find examples in all three domains.

142-145. Match the following plant examples with the concept on the left.

| CONCEPT | PLANT EXAMPLES |
|---|---|
| 142. Symbiotic relationship | A. Number of trees per acre |
| 143. Specialization and Division of labor | B. Lichen |
| 144. Competition | C. Swamp in which tamarack grows |
| 145. Habitat | D. Roots, trunk, leaves of one tree |
| | E. Trees dying from overcrowding |

146-149. Match the following animal examples with the concept on the left.

| CONCEPT | ANIMAL EXAMPLES |
|---|---|
| 146. Symbiotic relationship | A. Bees and flowers |
| 147. Specialization and Division of labor | B. Fox and bobcat |
| 148. Competition | C. A colony of bees |
| 149. Habitat | D. Cave in which bats live |
| | E. Rabbit and frog |

150-153. Match the following human examples with the concept on the left

| CONCEPT | HUMAN EXAMPLES |
|---|---|
| 150. Symbiotic relationship | A. A married couple |
| 151. Specialization and Division of labor | B. A neighborhood |
| 152. Competition | C. Assembly line production |
| 153. Habitat | D. Free enterprise system |
| | E. Number of dwelling units per acre |

154. Among wildlife, competition is always between members of different, rather than the same, species.

True False

155. Migration in wildlife management refers to:

1. Digging ditches to drain swamps (the opposite of irrigation)
2. The practice of trimming the horns of certain animals
3. The seasonal movement of animals from one area to another
4. The range over which different types of animals gather food

156. A Carnivore refers to:

1. A type of bird
2. An animal that feeds on other animals
3. An animal that feeds on plants
4. A type of fish

157. It appears that several species of wild birds are laying soft-shelled eggs which do not hatch. The reason for this is:

1. Accumulation in the birds of long-lasting chemicals from pesticides and herbicides
2. The side effects of forest fires
3. The depletion or loss of calcium in the soil in certain areas
4. Natural evolution

158. The producers in food chains are always green (chlorophyl) plants.

True False

159. Climax species are the first group of plants to inhabit an area following a major ecological change.

True False

160. If people would be more careful, there would be no forest fires.

True False

161. A young tree is called a seedling.

True False

162. Pioneer species are the first group of plants to inhabit an area following a major ecological change.

True False

163. Photosynthesis is the process by which green plants make food using water, sunlight and carbon dioxide.

True False

A system, such as an ecosystem, has been defined as something which works or behaves as a whole because of dependencies between its parts. Healthy systems are those which have parts that work together well over time. For each of the following quotations note on your answer sheet whether or not it reflects a "system view" of the world.

| QUOTATION | REFLECTIVE SYSTEM VIEW | |
|---|---|---|
| 164. A chain is no stronger than its weakest link | Yes | No |
| 165. Everything is connected to everything anyway | Yes | No |
| 166. No one can tell me what to do; I can do as I please | Yes | No |
| 167. Everything must go somewhere | Yes | No |

## PART V

## FEDERAL RESOURCE AGENCIES

168-173. Identify what these federal agencies do:

| AGENCY | MAJOR DUTIES |
|---|---|
| 168. National Park Service (NPS) | A. Timber management and multiple land use, including many wilderness areas |
| 169. U.S. Geological Survey (USGS) | B. Surveys of water and mineral resources and preparation of topographic maps |
| 170. Bureau of Reclamation (BR) | C. Protection of watersheds and erosion control on private agricultural lands |
| 171. U.S. Forest Service (USFS) | D. Responsible for multiple use of public lands not assigned to any other federal agency |
| 172. Bureau of Land Management (BLM) | E. Development of hydroelectric and irrigation systems |
| 173. Soil Conservation Service (SCS) | F. Management of natural, historic and recreation areas |
| | G. Regulation of interstate commerce |

174-178. Identify what these federal agencies do:

| AGENCY | MAJOR DUTIES |
|---|---|
| 174. Bureau of Sport Fisheries and Wildlife (BSFW) | A. Flood control, navigation, and stream channelization |
| 175. Bureau of Indian Affairs (BIA) | B. Provides services, education, and other assistance for descendants of original residents of North America |
| 176. Bureau of Outdoor Recreation (BOR) | C. Regulation of civil disorders |
| 177. U.S. Army Corps of Engineers (CE) | D. Reviews and makes impact statements with regard to our environment |
| 178. Environmental Protection Agency (EPA) | E. Coordinates recreation planning and administers grants to states |
| | F. Protection of endangered species and management of water fowl, and other wild animals |

APPENDIX D

Questionnaires

## QUESTIONNAIRES

BOOKLET 1: Environmental Education Test administered during the first few days of camp and again during the last week of camp.

BOOKLET 2: IRP Booklet administered during the second week of camp.

BOOKLET 3: GATB Booklet administered along with Booklet 2.

BOOKLET 4: END-OF-CAMP Booklet administered during the last week of camp along with Booklet 1.

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THE UNIVERSITY OF MICHIGAN
ANN ARBOR, MICHIGAN 48106



**2**

O.M.B. No.: 40-S73029
Approval expires: Oct. 31, 1973

Booklet Number

# 1973 YOUTH CONSERVATION CORPS

## IRP BOOKLET

The questions below are to help us understand how you feel about your experiences in the Youth Conservation Corps so far this summer.

Before we begin we need some information which will be used by the staff at the University of Michigan to match up the three different questionnaires which you will fill out for them this summer.

1-3 Camp number _____

4-9 1. When were you born? _____ (month) _____ (day) _____ (year)

10 2. How many brothers do you have? (do not include yourself)? _____

11 3. How many sisters do you have? (do not include yourself)? _____

12 4. How do you feel about your Youth Conservation Corps experience so far this summer?

- ☐ 1. I REALLY LIKE IT
- ☐ 2. I LIKE IT
- ☐ 3. I CAN'T SAY I CLEARLY LIKE OR DISLIKE IT
- ☐ 4. I DISLIKE IT
- ☐ 5. I REALLY DISLIKE IT

13 5. How worthwhile has your Youth Conservation Corps experience been to you so far this summer?

- ☐ 1. VERY WORTHWHILE
- ☐ 2. SOMEWHAT WORTHWHILE
- ☐ 3. NOT VERY WORTHWHILE
- ☐ 4. NOT AT ALL WORTHWHILE

Some people think corps members should participate in running the Youth Conservation Corps camps. Others think the camp supervisory staff should decide everything. In each of the following areas please tell us what you think is best. Place an "X" through your answer.

14 6. How much do you think corps members should participate in planning the camp work program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

15 7. How much do you think corps members should participate in planning the camp recreational program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

16 8. How much do you think corps members should participate in planning the environmental education program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

17 9. How much do you think corps members should participate in deciding on camp discipline?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

Now we would like your views on the amount of participation you think you have had in running this camp.

18 10. How much do you think you have participated in planning the camp work program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

19 11. How much do you think you have participated in planning the camp recreational program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

20 12. How much do you think you have participated in planning the environmental education program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

21 13. How much do you think you have participated in deciding on camp discipline?

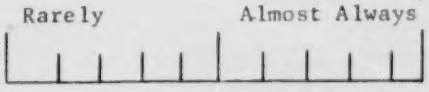
[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

These next questions give us additional information on how you feel about the camp and its staff. The questions are designed to determine how the staff and corps members have worked together this summer and are important to the planning of future Youth Conservation Corps programs. Therefore, we would like you to answer each question as thoughtfully and frankly as possible. Remember this is not a test and there are no right or wrong answers.

Next to each question is a line with words explaining what each end of the line means. We want you to place an X at the point along the line which, in your experience, best describes how your camp is. For example, if on the first question you feel your camp staff is rarely friendly and supportive, you would put an X on the far left end of the line. If you think the staff is almost always friendly and supportive you would put the X on the far right end of the line. If your experience is somewhere in between, please place an X where you think it belongs.

22-23 14. How often is the behavior of the camp staff friendly and supportive?

Rarely — Almost Always



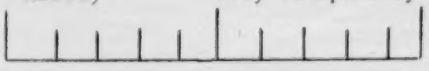
24-25 15. How often does the staff ask for and use your ideas about:

a. Program matters such as work assignments and topics studied?

Rarely — Very Frequently

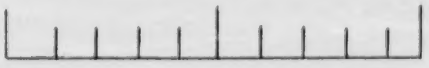
b. Non-program matters such as discipline and free time activities?

Rarely — Very Frequently



26-27 16. To what extent is the staff willing to try new ways of doing things in order to improve the corps program?

Practically never — A very great extent

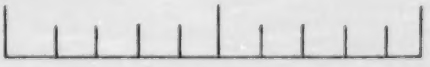


28-29 17. To what extent do you consider individual members of the staff as friends?

Practically never — A very great extent

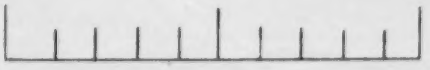
30-31 18. To what extent is the staff willing to share information with corps members about the camp and its operation?

Practically never — A very great extent



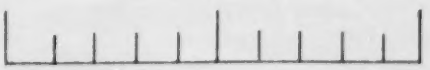
32-33 19. To what extent does the staff give positive rather than negative comments or criticisms in discussing the work of corps members?

Practically never — A very great extent



34-35 20. How well do you feel you understand the goals and objectives of the Youth Conservation Corps program?

Not Well — Very Well



36-37 **21.** How well do you think the staff does in running the camp?

Not Well — Very Well

38-39 **22.** How well **are** the work and study assignments organized and clearly planned?

Not Well — Very Well

40-41 **23.** To what extent do one or two of the staff seem to make most of the decisions in camp?

Practically never — A very great extent

42-43 **24.** To what extent **do** you feel free to talk to members of the staff?

Practically never — A very great extent

44-45 **25.** To what extent **does** the staff treat you as an individual rather than just another member of the group?

Practically never — A very great extent

46-47 **26.** How much **are** you involved in making decisions about running the camp and its programs?

Rarely — Very Frequently

48-49 **27.** How often **do** the staff and corps members meet together to discuss camp problems?

Rarely — Very Frequently

50-51 **28.** To what extent does the staff treat you as understand your personal problems and help you deal with them?

Practically never — A very great extent

52-53 **29.** How much trust and confidence are shown by the camp staff in working with corps members?

Practically none — A very great deal

The next questions give us some background information about you. In reporting the results of this study we will not disclose information that will identify any individual by name. Instead, we will report our findings by broad categories such as "10th grade," "all girls," etc. We also want to know how well the camps are working out for people with different backgrounds. Therefore, these questions are very important to us.

54 30. What is your sex?

- ☐ 1. Female
- ☐ 2. Male

55 31. What is your race or ethnic background?

- ☐ 1. American Indian
- ☐ 2. Black
- ☐ 3. Oriental
- ☐ 4. Spanish (Chicano, Mexican, Puerto Rican, Cuban or other Spanish descent)
- ☐ 5. White
- ☐ 6. Other _____

56-57 32. What was the last grade in school you completed before coming to camp?

- ☐ 08
- ☐ 09
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ First year of college

INSTITUTE FOR SOCIAL RESEARCH
ANN ARBOR, MICHIGAN 48106
THE UNIVERSITY OF MICHIGAN

O.M.B. No. 40-S73029
Approval expires: Oct 31, 1973

# 1973 YOUTH CONSERVATION CORPS
## GATB BOOKLET

INSTRUCTIONS

When you answer the questions inside, please observe carefully these important requirements:

--Use only the soft (No. 2) pencil you were given. Don't use a pen.

--Make heavy black marks that fill the circles.

--Erase completely any answer you wish to change.

--Make no stray markings of any kind.

On this page are some exercises in finding the two words which have either the SAME meaning or OPPOSITE MEANINGS.

Look at exercise 1.

(1) ● big ● large ③ dry ④ slow

*Big* and *large* have the SAME meaning. Therefore, the 1 and 2 circles have been filled in.

Now look at exercise 2.

(2) ① dreary ● loyal ③ ancient ● disloyal

*Loyal* and *disloyal* have OPPOSITE meanings, so the 2 and 4 circles have been filled in.

Here are some practice exercises. In each exercise, find the two words which have either the SAME meaning or OPPOSITE meanings and fill in the correct circles.

| | | | |
|---|---|---|---|
| ① mild | ② correct | ③ wrong | ④ similar |
| ① open | ② fall | ③ start | ④ finish |
| ① amusing | ② tiny | ③ awkward | ④ funny |
| ① examine | ② help | ③ inspect | ④ discover |

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

On the following pages are more exercises like these. Work as fast as you can without making mistakes. You will be allowed 5 minutes.

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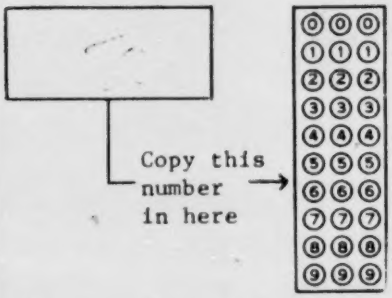
The 60 items in the GATB
test are not reproduced here.

61. Camp No.




62. When were you born? (Write month, day, and year in the boxes, then fill in the circles to match.)

| Month | Day | Yr. |
|---|---|---|
| | | |
| Jan ○ | 0 0 | 0 |
| Feb ○ | 1 1 | 1 |
| Mar ○ | 2 2 | 2 |
| Apr ○ | 3 3 | 3 |
| May ○ | 4 | 4 |
| Jun ○ | 5 5 | 5 |
| Jul ○ | 6 6 | 6 |
| Aug ○ | 7 | 7 |
| Sep ○ | 8 | 8 |
| Oct ○ | 9 | 9 |
| Nov ○ | | |
| Dec ○ | | |

63. How many brothers and sisters do you have? (Do not include yourself.)

| Brothers | Sisters |
|---|---|
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |

64. How old were you on your last birthday?

13 ○ 14 ○ 15 ○ 16 ○ 17 ○ 18 ○

65. Have you completed a course in natural science, biology, conservation, or outdoor education in school?

○ Yes ○ No

66. Have you had any camping experience prior to this summer? (CHECK ALL THAT APPLY.)

① Attended a YCC camp in the summer of 1971 or 1972.
② Some other camping experience (this can include camping with parents, scouts, church groups, summer camps, etc. DO NOT include prior YCC camp experience.
③ No previous camping experience.

67. Which of the following best describes the place where your home is located?

① A large city of more than 500,000 people
② A medium size city of 100,000 to 500,000 people
③ A suburb of a medium or large city
④ A small city of 25,000 to 100,000
⑤ A small town of less than 25,000 people
⑥ A rural area
⑦ An Indian reservation

68. How much schooling has your father had?

① Completed grade school or less
② Some high school
③ Completed high school
④ Some college
⑤ Completed college
⑥ Some graduate school

69. How much schooling has your mother had?

① Completed grade school or less
② Some high school
③ Completed high school
④ Some college
⑤ Completed college
⑥ Some graduate school



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ANN ARBOR, MICHIGAN 48106

**4**

O.M.B. No.: 40-S73029
Approval expires: Oct. 31, 1973

Booklet Number [ ]

# 1973 YOUTH CONSERVATION CORPS

## END-OF-CAMP BOOKLET

The questions below are to help us understand how you feel about your experiences in the Youth Conservation Corps so far this summer. The first questions should be answered right in this booklet. First, fill in the box below. This information will be used by the staff at the University of Michigan to match up the different questionnaires which you filled out for them this summer.

1-3 Camp number _____

4-9 1. When were you born? _____ (month) _____ (day) _____ (year)

10 2. How many brothers do you have? (Do not include yourself, stepbrothers or half brothers.) _____

11 3. How many sisters do you have? (Do not include yourself, stepsisters or half sisters.) _____

12 4. To begin with, how do you feel about your Youth Conservation Corps experience this summer?

[1] I REALLY LIKED IT

[2] I LIKED IT

[3] I CAN'T SAY I CLEARLY LIKED OR DISLIKED IT

[4] I DISLIKED IT

[5] I REALLY DISLIKED IT

13 5. How worthwhile to you was your Youth Conservation Corps experience this summer?

[1] VERY WORTHWHILE

[2] SOMEWHAT WORTHWHILE

[3] NOT VERY WORTHWHILE

[4] NOT AT ALL WORTHWHILE

Some people think corps members should participate in running the Youth Conservation Corps camps. Others think the camp supervisory staff should decide everything. In each of the following areas please tell us what you think is best. Place an "X" through your answer.

14 6. How much do you think corps members should participate in planning the camp work program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

15 7. How much do you think corps members should participate in planning the camp recreational program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

16 8. How much do you think corps members should participate in planning the environmental education program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

17 9. How much do you think corps members should participate in deciding on camp discipline?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

Now we would like your views on the amount of participation you think you have had in running this camp.

18 10. How much do you think you have participated in planning the camp work program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

19 11. How much do you think you have participated in planning the camp recreational program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

20 12. How much do you think you have participated in planning the environmental education program?

[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

21 13. How much do you think you have participated in deciding on camp discipline?

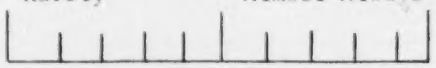
[1. A GOOD DEAL] [2. SOME] [3. VERY LITTLE] [4. NOT AT ALL]

These next questions give us additional information on how you feel about the camp and its staff. The questions are designed to determine how the staff and corps members have worked together this summer and are important to the planning of future Youth Conservation Corps programs. Therefore, we would like you to answer each question as thoughtfully and frankly as possible. Remember this is not a test and there are no right or wrong answers.

Next to each question is a line with words explaining what each end of the line means. We want you to place an X at the point along the line which, in your experience, best describes how your camp was. For example, if on the first question you feel your camp staff was rarely friendly and supportive, you would put an X on the far left end of the line. If you think the staff was almost always friendly and supportive you would put the X on the far right end of the line. If your experience was somewhere in between, please place an X where you think it belongs.

22-23 14. How often was the behavior of the camp staff friendly and supportive?

Rarely — Almost Always



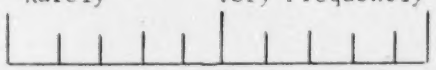
15. How often did the staff ask for and use your ideas about:

Rarely — Very Frequently

24-25 a. Program matters such as work assignments and topics studied?

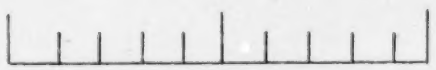
Rarely — Very Frequently

26-27 b. Non-program matters such as discipline and free time activities?



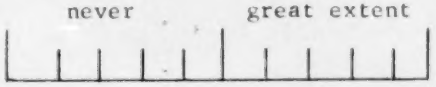
Practically never — A very great extent

28-29 16. To what extent was the staff willing to try new ways of doing things in order to improve the corps program?



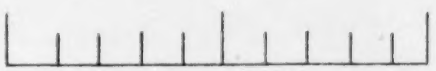
Practically never — A very great extent

30-31 17. To what extent did you consider individual members of the staff as friends?



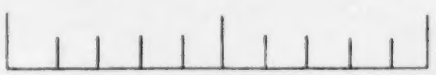
Practically never — A very great extent

32-33 18. To what extent was the staff willing to share information with corps members about the camp and its operation?



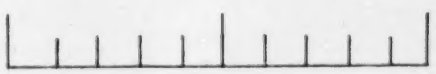
Practically never — A very great extent

34-35 19. To what extent did the staff give positive rather than negative comments or criticisms in discussing the work of corps members?



Not Well — Very Well

36-37 20. How well did you feel you understood the goals and objectives of the Youth Conservation Corps program?



38-39 21. How well do you think the staff did in running the camp?

Not Well — Very Well

40-41 22. How well were the work and study assignments organized and clearly planned?

Not Well — Very Well

42-43 23. To what extent did one or two of the staff seem to make most of the decisions in camp?

Practically never — A very great extent

44-45 24. To what extent did you feel free to talk to members of the staff?

Practically never — A very great extent

46-47 25. To what extent did the staff treat you as an individual rather than just another member of the group?

Practically never — A very great extent

48-49 26. How much were you involved in making decisions about running the camp and its programs?

Rarely — Very Frequently

50-51 27. How often did the staff and corps members meet together to discuss camp problems?

Rarely — Very Frequently

52-53 28. To what extent did the staff try to understand your personal problems and help you deal with them?

Practically never — A very great extent

54-55 29. How much trust and confidence was shown by the camp staff in working with corps members?

Practically none — A very great deal

5

The next questions give us some background information about you. In reporting the results of this study we will not disclose information that will identify any individual by name. Instead, we will report our findings by broad categories such as "10th grade," "all girls," etc. We also want to know how well the camps are working out for people with different backgrounds. Therefore, these questions are very important to us.

56 30. What is your sex?

- ☐ 1. Female
- ☐ 2. Male

57 31. What is your race or ethnic background?

- ☐ 1. American Indian
- ☐ 2. Black
- ☐ 3. Oriental
- ☐ 4. Spanish (Chicano, Mexican, Puerto Rican, Cuban or other Spanish descent)
- ☐ 5. White
- ☐ 6. Other _____

58-59 32. What was the last grade in school you completed before coming to camp?

- ☐ 08
- ☐ 09
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ First year of college

The next question should be answered on the separate answer sheet you have been given. There are no right or wrong answers; we want to know how you feel about your camp experience.

When using the answer sheet, remember these instructions:

--Use only a soft pencil (no. 2 is ideal).

--Make heavy black marks that fill the circles.

--Erase cleanly any answer you wish to change.

--Do not make any stray marks on the answer sheet.

Turn the answer sheet to side two and find the section that has answers numbered A, B, C, ....

Here are some questions about how you would rate specific parts of the Youth Conservation Corps.

| MARK YOUR ANSWERS ON THE ANSWER SHEET | Excellent | Very Good | Good | Fair | Poor |
|---|---|---|---|---|---|
| How would you rate the Regular Staff: | | | | | |
| A. as work leaders? | 1 | 2 | 3 | 4 | 5 |
| B. as to their commitment to the overall objectives of the YCC program? | 1 | 2 | 3 | 4 | 5 |
| C. as to their concern about the environment? | 1 | 2 | 3 | 4 | 5 |
| D. as to their knowledge of the environment? | 1 | 2 | 3 | 4 | 5 |
| E. as to their ability to help you learn about the environment? | 1 | 2 | 3 | 4 | 5 |
| How would you rate your fellow corps members: | | | | | |
| F. as co-workers? | 1 | 2 | 3 | 4 | 5 |
| G. as to their commitment to the overall objectives of the YCC program? | 1 | 2 | 3 | 4 | 5 |
| H. as to their concern about the environment? | 1 | 2 | 3 | 4 | 5 |
| I. as to their knowledge of the environment? | 1 | 2 | 3 | 4 | 5 |
| J. as to their ability to help you learn about the environment? | 1 | 2 | 3 | 4 | 5 |
| How would you rate the work accomplished by corps members at your camp: | | | | | |
| K. as to amount? | 1 | 2 | 3 | 4 | 5 |
| L. as to quality? | 1 | 2 | 3 | 4 | 5 |
| M. as to its benefit to the environment? | 1 | 2 | 3 | 4 | 5 |
| N. as to its benefit to the public? | 1 | 2 | 3 | 4 | 5 |

7

MARK YOUR ANSWERS ON THE ANSWER SHEET

| | Excellent | Very Good | Good | Fair | Poor |
|---|---|---|---|---|---|
| How would you rate the environmental education you received: | | | | | |
| O. as part of the work program? | 1 | 2 | 3 | 4 | 5 |
| P. as part of lectures, films, or classes held in camp? | 1 | 2 | 3 | 4 | 5 |
| Q. as part of recreation or other parts of the program (informal discussion, ecological games, reading in the library)? | 1 | 2 | 3 | 4 | 5 |
| R. in terms of its application to your post-camp life? | 1 | 2 | 3 | 4 | 5 |
| S. How would you rate the coordination between the work and the environmental education program -- how well did one tie into the other? | 1 | 2 | 3 | 4 | 5 |
| T. How would you rate your camp as a community -- a place where interests are shared and people work well and get along well together? | 1 | 2 | 3 | 4 | 5 |

ANSWER THE NEXT 2 QUESTIONS ONLY IF YOU WERE IN A RESIDENTIAL CAMP

| | | | | | |
|---|---|---|---|---|---|
| U. How would you rate the living accomodations? | 1 | 2 | 3 | 4 | 5 |
| V. How would you rate the recreational facilities? | 1 | 2 | 3 | 4 | 5 |

MARK YOUR ANSWERS ON THE ANSWER SHEET

| | Excellent | Very Good | Good | Fair | Poor |
|---|---|---|---|---|---|
| W. Compared to other summer jobs for people your age, how would you rate the YCC job you had this summer | 1 | 2 | 3 | 4 | 5 |
| X. How would you rate the amount of money you earned this summer compared to what you could have earned at another summer job at home? | 1 | 2 | 3 | 4 | 5 |

Y. Did the staff spend time drilling or preparing you for the environmental education test?

1. Yes 2. No

Below are some of the things you might have learned this summer. For each item indicate on your answer sheet how much you learned about it this summer.

Z. General principles of ecology and conservation.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

AA. How the things I do affect the environment.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

BB. How I can help people in my community become active in working on environmental problems.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

CC. How to use tools.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

DD. How to get along better with people my own age.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

EE. How to get along better with people of different racial or ethnic groups.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

FF. How to work on projects that require teamwork.

1. Nothing at all 2. A little 3. Pretty much 4. Very much

Will any of the things you learned this summer be of value to you back home?

GG. General principles of ecology and conservation.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

HH. How the things I do affect the environment.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

II. How I can help people in my community become active in working on environmental problems.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

JJ. How to use tools.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

KK. How to get along better with people my own age.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

LL. How to get along better with people of different racial or ethnic groups.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

MM. How to work on projects that require teamwork.

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

NN. In general, do you think the things you learned this summer will be valuable to you back home?

1. Not at all valuable back home
2. Not very valuable back home
3. Somewhat valuable back home
4. Very valuable back home

YOU WILL NOW BE GIVEN
THE ENVIRONMENTAL EDUCATION TEST BOOKLET.

YOUR ANSWERS WILL BE MADE ON
SIDE ONE OF THE ANSWER SHEET

APPENDIX E

Technical Tables

CHAPTER TWO

*Sample Size*

| | 1971 | 1972 | 1973 |
|---|---|---|---|
| Total number of enrollees | 2676 | 3495 | 3510 |
| Total number of U of M sample | 2310 | 3211 | 3272 |

The total number in the Michigan sample is in all cases smaller than the total number of enrollees. Excluded are three groups: (1) Enrollees in the camp in American Samoa and the one in Puerto Rico were purposely not included in this study. (2) One camp in the U.S. did not receive the questionnaire materials. (3) A small number of campers provided answer sheets which were incorrectly filled out.

*National Distribution of 15-19 Year Olds in the U.S. by Race as of 1970*

| Category | Frequency | Percent |
|---|---|---|
| Negro | 2,427,628 | 12.7 |
| Native American | 82,940 | 0.4 |
| Oriental | 134,418 | 0.7 |
| Other | 26,290 | 0.1 |
| Spanish Heritage* | 977,353 | 5.1 |
| White (European stock) | 15,545,250 | 81.0 |
| TOTAL | 19,193,879 | 100.0 |

*"Spanish heritage" is based on the use of four identifiers: (1) Birthplace is Mexico, Cuba, or Puerto Rico; or (2) Spanish is the "mother tongue" in the household; or (3) the surname is Spanish (8,000 name lists published by U.S. Immigration and Naturalization Service); or (4) people identified themselves as being of Spanish origin.

The decennial census in 1970 ascertained race using a question which asked the respondent to self-categorize himself. There were no categories for people who wished to identify themselves as being of Spanish origin; those wishing to do so were forced to use the "other" category. After completing the decennial census in 1970, the Census Bureau conducted a separate study of people of Spanish heritage. (Persons of Spanish Origin, Booklet PC(2)-1C and Persons of Spanish Surname, Booklet PC(2)-1D). In this study, they identified 977,353 15-19 year olds of Spanish heritage. They also discovered that in the decennial census, between 95 and 98 percent of all people of Spanish heritage had chosen the category "white". Accordingly, in the above table the number of 15-19 year olds identified in this separate study were subtracted from the category of "white." In all other ways, the data in the above table are taken from the 1970 census as reported in Bureau of the Census, United States Summary, Vol. I, 1970.

## CHAPTERS FOUR AND FIVE

### Multiple Classification Analyses

Following this introduction are several printouts from Multiple Classification Analyses (MCAs). They correspond to summary Tables 4-3, 4-4, and 5-3 in the text. For each dependent variable MCAs were performed initially using all of the available predictors which met the criterion of being theoretically relevant. Variables were excluded from subsequent runs based on four criteria:

1. The bivariate relationship of a predictor had to be statistically significant, given the N (usually in excess of 2700) and the number of categories in the predictor. The F from an analysis of variance was used for this purpose.

2. The pattern of the relationship between the predictor and the dependent variable had to make theoretical sense. If the scale underlying a predictor was ordinal, the relationship to the dependent variable had to be monotonic or nearly so. If the scale underlying the predictor was only nominal then there had to be some theoretical reason supporting the obtained pattern.

3. In a multivariate analysis (MCA) the obtained beta value had to be high enough to indicate that the predictor could hold its own in a joint prediction with other predictor variables. Unlike multiple regression, it is not possible with MCA to test

for the statistical significance of beta. Thus, somewhat arbitrary ground rules were used by the analyst to make rejections based on this criterion.

4. Finally, differences of interest among subclasses of a predictor had, in most cases, to show a difference in a mean on the dependent variable of at least 15 percent of the standard deviation of the dependent variable.

DEPENDENT VARIABLE STATISTICS

MULTIPLE CLASSIFICATION ANALYSIS

DEPENDENT VARIABLE (Y) = 534: 534S5E-B  Gain score: individual's post test score minus his pretest score

MEAN = 7.5237761

STANDARD DEVIATION = 14.750668

SUM OF Y = 21518.000

SUM OF Y SQUARE = 783964.00

TOTAL SUM OF SQUARES = 622067.50

EXPLAINED SUM OF SQUARE = 32022.090

RESIDUAL SUM OF SQUARES = 590045.37

NUMBER OF CASES = 2860  The number for whom there were both pre and post tests.

PREDICTOR SUMMARY STATISTICS

PREDICTOR 428: 428Q30SX

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 45 | 45 | 1.6 | 8.44444 | 0.92066765 | 0.14884454 | 7.6726198 | 20.205260 | missing data |
| 1 | 1326 | 1326 | 46.4 | 8.76772 | 1.2439461 | 1.2323112 | 8.7560873 | 13.094099 | female |
| 2 | 1489 | 1489 | 52.1 | 6.38818 | -1.1355963 | -1.1019154 | 6.4218607 | 15.830835 | male |

ETA-SQUARE = 0.64465329E-02  BETA-SQUARE = 0.61450191E-02
ETA = 0.80290318E-01  BETA = 0.78390181E-01

ETA-SQUARE(ADJ)= 0.57510138E-02
ETA(ADJ)= 0.75835466E-01

UNADJUSTED DEVIATION SS = 4010.1797
ADJUSTED DEVIATION SS = 3822.6177

PREDICTOR 429: 429Q31RC

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 50 | 50 | 1.7 | 8.46000 | 0.93622303 | 1.0808926 | 8.6046686 | 19.218624 | missing data |
| 1 | 127 | 127 | 4.4 | 1.95275 | -5.5710211 | -5.3247766 | 2.1989994 | 15.315651 | Native American |
| 2 | 204 | 204 | 7.1 | 5.76471 | -1.7590704 | -2.0717068 | 5.4520693 | 16.466522 | Black |
| 3 | 38 | 38 | 1.3 | 10.8684 | 3.3446445 | 1.6625795 | 9.1863556 | 13.030465 | Oriental |
| 4 | 120 | 120 | 4.2 | 10.1250 | 2.6012239 | 2.4947414 | 10.018517 | 13.428029 | Spanish |
| 5 | 2267 | 2267 | 79.3 | 7.79576 | 0.27198887 | 0.31461287 | 7.8383884 | 14.443860 | White |
| 6 | 54 | 54 | 1.9 | 6.85185 | -0.67192459 | -0.57201299 | 6.9508629 | 15.565331 | Other |

ETA-SQUARE = 0.971dd912E-02 BETA-SQUARE = 0.904857746-02
ETA = 0.98584414E-01 BETA = 0.95124006E-01

ETA-SQUARE(ADJ)= 0.65919161E-02
ETA(ADJ)= 0.81190646E-01

UNADJUSTED DEVIATION SS = 6045.8086
ADJUSTED DEVIATION SS = 5628.8281

PREDICTOR # 11: 11AGENCY

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 400 | 400 | 14.0 | 10.1150 | 2.5912237 | 2.2944365 | 9.8182125 | 15.243283 | Natl Park Srvc |
| 2 | 154 | 154 | 5.4 | 10.7532 | 3.2294703 | -0.27924252 | 7.2445335 | 13.387787 | BLM |
| 3 | 156 | 156 | 5.5 | 11.6026 | 4.0787878 | 3.8089142 | 11.332690 | 12.999096 | Bur Rec |
| 4 | 125 | 125 | 4.4 | 4.37600 | -3.1477766 | -0.17116547 | 7.3526106 | 13.677545 | Bur Ind Affairs |
| 5 | 380 | 380 | 13.3 | 7.55526 | 0.31486511E-01 | -0.15656900 | 7.3672066 | 16.830196 | Bur Sport Fish. |
| 6 | 1645 | 1645 | 57.5 | 6.43647 | -1.0873022 | -0.84361908 | 6.6799564 | 14.277418 | Forest Service |

ETA-SQUARE = 0.16189396E-01 BETA-SQUARE = 0.89464001E-02
ETA = 0.12723756 BETA = 0.94585419E-01

ETA-SQUARE(ADJ)= 0.11000991E-01
ETA(ADJ)= 0.10488564

UNADJUSTED DEVIATION SS = 10070.898
ADJUSTED DEVIATION SS = 5565.2656



PREDICTOR 13: 13NWEEKS

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 580 | 580 | 20.3 | 5.07069 | -2.4530869 | -1.6737185 | 5.8500576 | 14.207207 | four-week session |
| 8 | 2280 | 2280 | 79.7 | 8.14781 | 0.62403011 | 0.42577082 | 7.9495468 | 14.824129 | eight-week session |

ETA-SQUARE = 0.70379637E-02 BETA-SQUARE = 0.32763216E-02
ETA = 0.83892584E-01 BETA = 0.57239160E-01

ETA-SQUARE(ADJ)= 0.10986328E-02
ETA(ADJ)= 0.33145629E-01

UNADJUSTED DEVIATION SS = 4378.0898
ADJUSTED DEVIATION SS = 2038.0933

PREDICTOR 1433: 1433IRP

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 248 | 248 | 8.7 | 4.20161 | -3.3221636 | -2.7720833 | 4.7516928 | 12.337350 | low level of interp relat |
| 2 | 295 | 295 | 10.3 | 7.58305 | 0.59274673E-01 | 0.56808716 | 8.0918627 | 16.951684 | and participation |
| 3 | 598 | 598 | 20.9 | 6.20401 | -1.3197632 | -1.4771910 | 6.0465851 | 14.287729 | |
| 4 | 773 | 773 | 27.0 | 7.57309 | 0.49315453E-01 | 0.15942496 | 7.6832008 | 16.237355 | |
| 5 | 671 | 671 | 23.5 | 8.64382 | 1.1200390 | 0.60239168 | 8.1266670 | 13.637409 | |
| 6 | 251 | 251 | 8.8 | 8.89243 | 1.3686533 | 1.7046785 | 9.2284546 | 10.611333 | |
| 7 | 24 | 24 | 0.8 | 26.7917 | 19.267868 | 18.650681 | 26.174454 | 18.436682 | high level of interp relat and participation |

ETA-SQUARE = 0.22511326E-01 BETA-SQUARE = 0.20330761E-01
ETA = 0.15003777 BETA = 0.14258599

ETA-SQUARE(ADJ)= 0.14237046E-01
ETA(ADJ)= 0.11931908

UNADJUSTED DEVIATION SS = 14003.566
ADJUSTED DEVIATION SS = 12647.105

**ANALYSIS SUMMARY STATISTICS**

R-SQUARED (UNADJUSTED) = PROPORTION OF VARIATION EXPLAINED BY FITTED MODEL = 0.05148

ADJUSTMENT FOR DEGREES OF FREEDOM = 1.00704

***MULTIPLE R (ADJUSTED) = 0.21165 MULTIPLE R-SQUARED (ADJUSTED) = 0.04480

DEPENDENT VARIABLE 534: 534S5E-8

LISTING OF BETAS IN DESCENDING ORDER

| RANK | VAR. NO. | NAME | BETA |
|---|---|---|---|
| 1 | 1433 | 1433IRP | 0.14258599 |
| 2 | 429 | 429031RC | 0.95124006E-01 |
| 3 | 11 | 11AGENCY | 0.94585419E-01 |
| 4 | 428 | 428Q30SX | 0.78390181E-01 |
| 5 | 13 | 13NWEEKS | 0.57239160E-01 |

DEPENDENT VARIABLE STATISTICS

DEPENDENT VARIABLE (Y) = 401: 40104 Satisfaction (1 = I really liked it .... 5 = I really disliked it)

MEAN = 1.3475342

STANDARD DEVIATION = 0.60477877

SUM OF Y = 4017.0000

SUM OF Y SQUARE = 6503.0000

TOTAL SUM OF SQUARES = 1089.9570

EXPLAINED SUM OF SQUARE = 143.67749

RESIDUAL SUM OF SQUARES = 946.27954

NUMBER OF CASES = 2981

PREDICTOR SUMMARY STATISTICS

PREDICTOR 429: 429031RC

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 9 | 9 | 0.3 | 1.11111 | -0.23642349 | -0.19182765 | 1.1557064 | 0.33333333 | missing data |
| 1 | 142 | 142 | 4.8 | 1.56338 | 0.21584606 | 0.19144118 | 1.5389748 | 0.65736190 | Native American |
| 2 | 216 | 216 | 7.2 | 1.58796 | 0.24042797 | 0.21608061 | 1.5636139 | 0.79429580 | Black |
| 3 | 43 | 43 | 1.4 | 1.27907 | -0.68465233E-01 | -0.16562507E-01 | 1.3309717 | 0.62964772 | Oriental |
| 4 | 126 | 126 | 4.2 | 1.39682 | 0.49290657E-01 | -0.31327903E-01 | 1.3162060 | 0.67027594 | Spanish |
| 5 | 2386 | 2386 | 80.0 | 1.31727 | -0.30267715E-01 | -0.24738733E-01 | 1.3227949 | 0.57437545 | White |
| 6 | 59 | 59 | 2.0 | 1.15254 | -0.19499207 | -0.14320654 | 1.2043276 | 0.36263211 | Other |

ETA-SQUARE = 0.22516139E-01 BETA-SQUARE = 0.16905554E-01

ETA = 0.15000380 BETA = 0.13002133

ETA-SQUARE(ADJ)= 0.20544529E-01

ETA(ADJ)= 0.14333361

UNADJUSTED DEVIATION SS = 24.541626

ADJUSTED DEVIATION SS = 18.426331

PREDICTOR 13: 13NWEEKS

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 582 | 582 | 19.5 | 1.23024 | -0.11729431 | -0.97467661E-01 | 1.2500658 | 0.53636721 | four weeks |
| 8 | 2399 | 2399 | 80.5 | 1.37599 | 0.28455734E-01 | 0.23648191E-01 | 1.3711815 | 0.61698811 | eight weeks |

ETA-SQUARE = 0.91284923E-02 BETA-SQUARE = 0.63035265E-02
ETA = 0.95543146E-01 BETA = 0.79394758E-01

ETA-SQUARE(ADJ)= 0.64617991E-02
ETA(ADJ)= 0.80385327E-01

UNADJUSTED DEVIATION SS = 9.9456679
ADJUSTED DEVIATION SS = 6.8705759

PREDICTOR 14: 14R7NRRS

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1999 | 1999 | 67.1 | 1.31015 | -0.37379265E-01 | -0.32905914E-01 | 1.3146276 | 0.59599256 | residential/7-day |
| 2 | 597 | 597 | 20.0 | 1.44724 | 0.99701881E-01 | 0.11605722 | 1.4635906 | 0.60974736 | non-residential |
| 3 | 385 | 385 | 12.9 | 1.38701 | 0.39478302E-01 | -0.91099218E-02 | 1.3384237 | 0.62361318 | residential/5-day |

ETA-SQUARE = 0.85576884E-02 BETA-SQUARE = 0.93926825E-02
ETA = 0.92507786E-01 BETA = 0.96915841E-01

ETA-SQUARE(ADJ)= 0.48853159E-02

ETA(ADJ)= 0.69859029E-01

UNADJUSTED DEVIATION SS = 9.3275137
ADJUSTED DEVIATION SS = 10.237623

PREDICTOR SUMMARY STATISTICS

PREDICTOR 1433: 14331RP

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 252 | 252 | 8.5 | 1.76190 | 0.41437054 | 0.45281118 | 1.8003445 | 0.83191874 | low level of interp relat |
| 2 | 340 | 340 | 11.4 | 1.55588 | 0.20834732 | 0.17134404 | 1.5188780 | 0.70384162 | . and participation |
| 3 | 611 | 611 | 20.5 | 1.44681 | 0.99273682E-01 | 0.11366850 | 1.4612026 | 0.63635911 | . |
| 4 | 792 | 792 | 26.6 | 1.26894 | -0.78595161E-01 | -0.80743194E-01 | 1.2667904 | 0.52703871 | . |
| 5 | 715 | 715 | 24.0 | 1.20000 | -0.14753437 | -0.15066528 | 1.1968689 | 0.46802523 | . |
| 6 | 247 | 247 | 8.3 | 1.10526 | -0.24227142 | -0.23907632 | 1.1084576 | 0.30751534 | . |
| 7 | 24 | 24 | 0.8 | 1.00000 | -0.34753418 | -0.46222627 | 0.88530791 | 0.0 | high level of interp relat and participation |

ETA-SQUARE = 0.93491137E-01 BETA-SQUARE = 0.10109150
ETA = 0.30576315 BETA = 0.31794888

ETA-SQUARE(ADJ)= 0.87982476E-01
ETA(ADJ)= 0.29661840

UNADJUSTED DEVIATION SS = 101.90138
ADJUSTED DEVIATION SS = 110.18546

ANALYSIS SUMMARY STATISTICS

R-SQUARED (UNADJUSTED) = PROPORTION OF VARIATION EXPLAINED BY FITTED MODEL = 0.13182

ADJUSTMENT FOR DEGREES OF FREEDOM = 1.00506

***MULTIPLE R (ADJUSTED) = 0.35697 MULTIPLE R-SQUARED (ADJUSTED) = 0.12743

DEPENDENT VARIABLE 401: 4C1Q4

LISTING OF BETAS IN DESCENDING ORDER

| RANK | VAR. NO. | NAME | BETA |
|---|---|---|---|
| 1 | 1433 | 1433IRP | 0.31794888 |
| 2 | 429 | 429Q31RC | 0.13002133 |
| 3 | 14 | 14R7NRR5 | 0.96915841E-01 |
| 4 | 13 | 13NWEEKS | 0.79394758E-01 |

***MULTIPLE R (ADJUSTED) = 0.35697 MULTIPLE R-SQUARED (ADJUSTED) = 0.12743

DEPENDENT VARIABLE STATISTICS

DEPENDENT VARIABLE (Y) = 78: 78ECOLRN ECOLEARN (scale: 1 = nothing at all ... 4 = very much)

MEAN = 3.0[illegible]

STANDARD DEVIATION = 0.5[illegible]

SUM OF Y = 9268.[illegible]

SUM OF Y SQUARE = 29382.223

TOTAL SUM OF SQUARES = 1049.2695

EXPLAINED SUM OF SQUARE = 112.[illegible]

RESIDUAL SUM OF SQUARES = 936.[illegible]

NUMBER OF CASES = 3032

PREDICTOR SUMMARY STATISTICS

PREDICTOR 42: 42RACE

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 65 | 65 | 2.1 | 2.92307 | -0.12[illegible] | 0.[illegible]E-01 | 3.15[illegible] | 0.[illegible] | missing data |
| 1 | 133 | 133 | 4.6 | 2.81203 | -0.24[illegible] | -0.[illegible] | 2.[illegible] | 0.[illegible] | Native American |
| 2 | 216 | 216 | 7.1 | 3.23[illegible] | -0.1[illegible]E-01 | -0.[illegible] | 3.[illegible] | 0.[illegible] | Black |
| 3 | 42 | 42 | 1.4 | 3.15972 | 0.10[illegible] | 0.[illegible]E-01 | 3.10[illegible] | 0.[illegible] | Oriental |
| 4 | 127 | 127 | 4.2 | 3.00128 | -0.[illegible]E-01 | 0.[illegible]E-02 | 3.[illegible] | 0.[illegible] | Spanish |
| 5 | 2383 | 2383 | 78.6 | 3.03500 | 0.14[illegible]E-01 | 0.[illegible]E-02 | 3.[illegible] | 0.[illegible] | White |
| 6 | 60 | 60 | 2.0 | 3.17500 | 0.11[illegible] | 0.[illegible]E-01 | 3.[illegible] | 0.[illegible] | Other |

ETA-SQUARE = 0.11[illegible]E-01 BETA-SQUARE = 0.7[illegible]E-02
ETA = 0.10[illegible] BETA = 0.[illegible]E-01

ETA-SQUARE(ADJ)= 0.[illegible]E-02
ETA(ADJ)= 0.[illegible]E-01

UNADJUSTED DEVIATION SS = 11.[illegible]
ADJUSTED DEVIATION SS = 7.[illegible]

PREDICTOR 43: 43DEGREE

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 53 | 53 | 1.7 | 2.83570 | -0.1[illegible] | -0.[illegible] | 2.[illegible] | 0.[illegible] | missing data |
| 8 | 32 | 32 | 1.1 | 2.82201 | -0.2[illegible] | -0.[illegible] | 2.[illegible] | 0.[illegible] | eighth grade |
| 9 | 474 | 474 | 15.6 | 2.92132 | -0.[illegible]E-01 | -0.[illegible] | 2.[illegible] | 0.[illegible] | ninth grade |
| 10 | 1323 | 1323 | 43.7 | 3.06868 | 0.11[illegible]E-01 | 0.[illegible] | 2.[illegible] | 0.[illegible] | tenth |
| 11 | 1006 | 1006 | 33.2 | 3.05564 | 0.[illegible]E-01 | 0.[illegible] | 3.[illegible] | 0.[illegible] | eleventh |
| 12 | 4[illegible] | 4[illegible] | 14.3 | 3.02[illegible] | -0.[illegible] | -0.[illegible] | 3.[illegible] | 0.[illegible] | twelfth |
| 13 | 4 | 4 | 0.1 | 3.[illegible] | 0.[illegible] | 0.[illegible] | 3.[illegible] | 0.[illegible] | one year beyond |

ETA-SQUARE = 0.6557505E-02 BETA-SQUARE = 0.7334459E-02
ETA = 0.8097E493E-01 BETA = 0.2441179E-01

ETA-SQUARE(ADJ)= 0.2276534CE-02
ETA(ADJ)= 0.4772EC79E-01

UNADJUSTED DEVIATION SS = 4.6FC8933
ADJUSTED DEVIATION SS = 4.6F835A2

PREDICTOR SUMMARY STATISTICS

PREDICTOR 1503: IRPEECPE Combination variable of IRP and Rating of EE

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 131 | 131 | 4.0 | 2.63164 | -0.42526345 | -0.43C66C55 | 2.62623B3 | C.4C311402 | low rating of EE & IRP |
| 2 | 433 | 433 | 14.1 | 2.85887 | -0.1E3C2159 | -0.1526B340 | 2.8342145 | 0.54913648 | . |
| 3 | 715 | 715 | 23.6 | 2.6F711 | -C.6575445E-01 | -0.6722E15E-01 | 2.6[illegible]6758 | C.58230244 | . |
| 4 | 781 | 781 | 25.8 | 3.C7780 | 3.2070316E-01 | 0.1224958C-01 | 3.0691643 | 0.54852219 | . |
| 5 | 657 | 657 | 21.7 | 3.2C1C5 | C.1441[illegible]079 | C.14[illegible]7n417 | 3.2006836 | C.53980667 | . |
| 6 | 245 | 245 | 8.1 | 3.35640 | C.2334CC51 | 0.2332[illegible]113 | 3.3501310 | 0.47427056 | |
| 7 | 24 | 24 | C.8 | 3.66666 | C.6C376219 | C.62080234 | 3.6777020 | 0.41754262 | high rating of EE & IRP |

ETA-SQUARE = 0.FH165217E-01 BETA-SQUARE = 0.H6004448E-01
ETA = 0.2967330C BETA = 0.2949485[illegible]

ETA-SQUARE(ADJ)= C.82113445E-C1
ETA(ADJ)= 0.2EE55446

UNADJUSTED DEVIATION SS = 92.5133CA
ADJUSTED DEVIATION SS = 91.2[illegible]853

ANALYSIS SUMMARY STATISTICS

R-SQUARED (UNADJUSTED) = PROPORTION OF VARIANCE EXPLAINED BY FITTED MODEL = C.1[illegible]7

ADJUSTMENT FOR DEGREES OF FREEDOM = 1.2[illegible]7

***MULTIPLE R (ADJUSTED) = 0.21584 MULTIPLE R-SQUARED (ADJUSTED) = C.1[illegible]C

DEPENDENT VARIABLE 7c: 7RECCBAN

LISTING OF BETAS IN DESCENDING ORDER

| RANK | VAR. NO. | NAME | BETA |
|---|---|---|---|
| 1 | 1503 | IRPEECPE | 0.2[illegible]4959 |
| 2 | 420 | 42CC52E0 | 0.F[illegible]411795E-01 |
| 3 | 429 | 42[illegible]31PC | 0.[illegible]4C[illegible]47[illegible]6E-01 |

***MULTIPLE R (ADJUSTED) = 0.21584 MULTIPLE R-SQUARED (ADJUSTED) = 0.10[illegible]

DEPENDENT VARIABLE STATISTICS

DEPENDENT VARIABLE (Y) = 77: 77TEAMLN TEAMLRN

MEAN = 3.3377766

STANDARD DEVIATION = 0.6586254P

SUM OF Y = 10025.490

SUM OF Y SQUARE = 34761.469

TOTAL SUM OF SQUARES = 1302.6641

EXPLAINED SUM OF SQUARE = 113.23045

RESIDUAL SUM OF SQUARES = 1189.4336

NUMBER OF CASES = 3004

PREDICTOR SUMMARY STATISTICS

PREDICTOR 428: 428030SX

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 54 | 54 | 1.8 | 3.26543 | -0.71949305E-01 | -0.76642454E-01 | 3.2607336 | 0.73937012 | missing data |
| 1 | 1420 | 1420 | 47.3 | 3.42640 | 0.93022865E-01 | 0.91655612E-01 | 3.4233314 | 0.61052783 | female |
| 2 | 1530 | 1530 | 50.9 | 3.24878 | -0.83592523E-01 | -0.83636294E-01 | 3.2537403 | 0.68136015 | male |

ETA-SQUARE = 0.20121675E-01 BETA-SQUARE = 0.17616497E-01
ETA = 0.14185089 BETA = 0.13272792

ETA-SQUARE(ADJ)= 0.1944538CE-01
ETA(ADJ)= 0.13953274

UNADJUSTED DEVIATION SS = 26.211792
ADJUSTED DEVIATION SS = 22.548839

PREDICTOR 14: 14R7NRR5

| CLASS | NO OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2027 | 2027 | 67.5 | 3.39424 | 0.56862831E-01 | 0.64268827E-01 | 3.4016447 | 0.63892010 | residential/7-day |
| 2 | 585 | 585 | 19.5 | 3.15474 | -0.14313412 | -0.18542166 | 3.1513442 | 0.68236176 | non-residential |
| 3 | 392 | 392 | 13.0 | 3.25930 | -0.78072548E-01 | -0.45603734E-01 | 3.2928159 | 0.64336033 | residential/5-day |

ETA-SQUARE = 0.16035940E-01 BETA-SQUARE = 0.22764534E-01
ETA = 0.12667148 BETA = 0.15087920

ETA-SQUARE(ADJ)= 0.1442565SE-01
ETA(ADJ)= 0.12010700

UNADJUSTED DEVIATION SS = 20.928529
ADJUSTED DEVIATION SS = 20.654541

PREDICTOR 1433: 1433IRP

| CLASS | NO. OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 253 | 253 | 8.4 | 3.07373 | -0.28364231 | -0.22215163 | 3.0452242 | 0.76063256 | low level of interp relat |
| 2 | 354 | 354 | 11.8 | 3.19392 | -0.14245837 | -0.10332674 | 3.2340458 | 0.67462735 | . and participation |
| 3 | 618 | 618 | 20.6 | 3.24262 | -0.74761221E-01 | -0.83537340E-01 | 3.2538386 | 0.67325033 | |
| 4 | 785 | 785 | 26.1 | 3.34092 | 0.25409937E-02 | 0.86571300E-02 | 3.3470335 | 0.63779061 | . |
| 5 | 719 | 719 | 23.9 | 3.47330 | 0.14101791 | 0.12630944 | 3.4617747 | 0.58433851 | . |
| 6 | 252 | 252 | 8.4 | 3.53844 | 0.20226863 | 0.20960322 | 3.5459852 | 0.51363944 | |
| 7 | 23 | 23 | 0.8 | 3.78241 | 0.44522853 | 0.62233387 | 3.8902156 | 0.34744312 | high level of interp relat and participation |

ETA-SQUARE = 0.44141717E-01 BETA-SQUARE = 0.46831140E-01
ETA = 0.2103392 BETA = 0.21643594

ETA-SQUARE(ADJ)= 0.40307641E-01
ETA(ADJ)= 0.20078764

UNADJUSTED DEVIATION SS = 57.501831
ADJUSTED DEVIATION SS = 61.135513

ANALYSIS SUMMARY STATISTICS

R-SQUARED (UNADJUSTED) = PROPORTION OF VARIATION EXPLAINED BY FITTED MODEL = 0.03492

ADJUSTMENT FOR DEGREES OF FREEDOM = 1.00334

**MULTIPLE R (ADJUSTED) = 0.28041 MULTIPLE R-SQUARED (ADJUSTED) = 0.07867

DEPENDENT VARIABLE 77#: 77TEAMLN

LISTING OF BETAS IN DESCENDING ORDER

| RANK | VAR. NO. | NAME | BETA |
|---|---|---|---|
| 1 | 1433 | 1433IRP | 0.21643594 |
| 2 | 14 | 14R7NCR5 | 0.15037323 |
| 3 | 421 | 42F0305X | 0.13272732 |

**MULTIPLE R (ADJUSTED) = 0.28041 MULTIPLE R-SQUARED (ADJUSTED) = 0.07867

DEPENDENT VARIABLE STATISTICS

DEPENDENT VARIABLE (Y) = 53: SPECTOOL How much learned about how to use tools (1 = nothing at all ... 4 = very much)

MEAN = 3.5056133

STANDARD DEVIATION = 0.73311396

SUM OF Y = 10615.000

SUM OF Y SQUARE = 39839.000

TOTAL SUM OF SQUARES = 1626.5062

EXPLAINED SUM OF SQUARE = 119.74643

RESIDUAL SUM OF SQUARES = 1507.1597

NUMBER OF CASES = 3028

PREDICTOR SUMMARY STATISTICS

PREDICTOR 429: 429JOBX

| CLASS | NO. OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 59 | 59 | 1.9 | 3.47459 | -0.31357331E-01 | -0.23004878E-01 | 3.4826078 | 0.87900582 | missing data |
| 1 | 1429 | 1429 | 47.2 | 3.44331 | -0.13663413 | -0.12274483 | 3.4333579 | 0.81443779 | female |
| 2 | 1540 | 1540 | 50.9 | 3.58182 | 0.12373551 | 0.11051321 | 3.3860098 | 0.40145700 | male |

ETA-SQUARE = 0.73477140E-01 BETA-SQUARE = 0.28325661E-01
ETA = 0.17457706 BETA = 0.16830201

ETA-SQUARE(ADJ)= 0.25834357E-01
ETA(ADJ)= 0.16073206

UNADJUSTED DEVIATION SS = 48.58345
ADJUSTED DEVIATION SS = 46.83038

PREDICTOR 431: AGENCY

| CLASS | NO. OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 415 | 415 | 13.7 | 3.45418 | -0.46479229E-01 | -0.40078718E-01 | 3.4656438 | 0.77195819 | NPS |
| 2 | 154 | 154 | 5.1 | 3.57792 | 0.72364540E-01 | 0.59221817E-01 | 3.5041951 | 0.71231149 | BLM |
| 3 | 133 | 133 | 4.4 | 3.36692 | -0.13977344 | -0.11713335 | 3.3941736 | 0.77270712 | BuRec |
| 4 | 131 | 131 | 4.3 | 3.60458 | 0.13139421 | 0.10927503E-01 | 3.4653432 | 0.70206280 | BIA |
| 5 | 382 | 382 | 12.6 | 3.28534 | -0.17202734 | -0.13360313 | 3.3123098 | 0.83540096 | BSFW |
| 6 | 1745 | 1745 | 57.7 | 3.58160 | 0.76287772E-01 | 0.78043633E-01 | 3.5036563 | 0.67742473 | FS |

ETA-SQUARE = 0.21462464E-01 BETA-SQUARE = 0.13846724E-01
ETA = 0.14784791 BETA = 0.14938713

ETA-SQUARE(ADJ)= 0.13222132E-01
ETA(ADJ)= 0.13382375

UNADJUSTED DEVIATION SS = 35.565743
ADJUSTED DEVIATION SS = 32.279007

PREDICTOR 1433: 1433IRP

| CLASS | NO. OF CASES | SUM OF WEIGHTS | PER CENTS | CLASS MEAN | UNADJUSTED DEVIATION FROM GRAND MEAN | COEFFICIENT | ADJUSTED MEAN | STAND DEV. | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 255 | 255 | 9.4 | 3.39216 | -0.11345673 | -0.10914260 | 3.3644701 | 0.73066485 | low level of interp relat |
| 2 | 258 | 258 | 11.8 | 3.45810 | -0.47513034E-01 | -0.76273503E-01 | 3.4233346 | 0.73482342 | and particip |
| 3 | 623 | 623 | 20.5 | 3.35368 | -0.1457[illegible]31 | -0.10631[illegible]19 | 3.3903325 | 0.79456142 | |
| 4 | 722 | 722 | 26.2 | 3.48485 | -0.20763[illegible]5E-01 | -0.30723[illegible]E-01 | 3.4749208 | 0.76733673 | |
| 5 | 724 | 724 | 23.3 | 3.63334 | 0.12846454 | 0.13113344 | 3.6396329 | 0.72231303 | |
| 6 | 255 | 255 | 8.4 | 3.70196 | 0.19634774 | 0.16[illegible]3783 | 3.6656259 | 0.69370143 | |
| 7 | 74 | 74 | 2.4 | 3.81867 | 0.41105270 | 0.40535488 | 3.8109678 | 0.28232985 | high level of interp relat and particip |

ETA-SQUARE = 0.26734424E-01 BETA-SQUARE = 0.21[illegible]01235E-01
ETA = 0.16343711 BETA = 0.14[illegible]

ETA-SQUARE(ADJ)= 0.21362329E-01
ETA(ADJ)= 0.14785316

UNADJUSTED DEVIATION SS = 42.45[illegible]
ADJUSTED DEVIATION SS = 35.77[illegible]

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ANALYSIS SUMMARY STATISTICS

R-SQUARED (UNADJUSTED) = [illegible] OF VARIATION EXPLAINED BY FITTED MODEL = 0.0734

ADJUSTMENT FOR DEGREES OF FREEDOM = 1.[illegible]

***MULTIPLE R (ADJUSTED) = 0.26384 MULTIPLE R-SQUARED (ADJUSTED) = 0.06961

DEPENDENT VARIABLE [illegible]: ASSOCIAL

LISTING OF BETAS IN DESCENDING ORDER

| RANK | VAR. NO. | NAME | BETA |
|---|---|---|---|
| 1 | 438 | 438[illegible]SY | [illegible] |
| 2 | 1433 | 1433IRP | [illegible] |
| 3 | 11 | 11A[illegible]SY | 0.14[illegible]711 |

***MULTIPLE R (ADJUSTED) = 2.26384 MULTIPLE R-SQUARED (ADJUSTED) = [illegible]

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